DOCUMENT RESUME

ED 129 255 IR 004 031

AUTHOR Schwen, Thomas M.
TITLE Curriculum Elements of Graduate Education: a Brief Case Study on the Evaluation of a Doctoral Program.
INSTITUTION Indiana Univ., Bloomington. Div. of Instructional Systems Technology.
PUB DATE Apr 76
NOTE 68p.; Paper presented at the Association for Educational Communications and Technology Annual Conference (Anaheim, California, March 28-April 2, 1976)

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS *Case Studies (Education); Curriculum Evaluation; *Doctoral Programs; Educational Technology; Evaluation Criteria; *Graduate Study; Higher Education; *Institutional Research; *Program Evaluation; Schools of Education
IDENTIFIERS AECT 76; *Indiana University

ABSTRACT

A current trend in evaluation to balance quantitative measures and qualitative judgments provided the philosophical context for this case study. In the late 1960's a balanced methodology was devised to evaluate doctoral programs in the School of Education at Indiana University. The model of doctoral education that emerged facilitated analysis, but it was contested by many faculty members. Students constituted the input and output variables in the model. The major process variables were stated as clusters of student activities while university resources constituted context variables. A statement of formal external criteria rather than substantive criteria was formulated that could be applied to all doctoral programs. Operational indicators of the criteria were enumerated by a faculty committee. The initiation of formal program review utilizing the evaluation process guide was postponed for six years and is still in halting progress. The process of developing the guide, the guide itself, and the problems of implementation at Indiana University provide a history of a difficult undertaking which proved particularly susceptible to the effects of circumstance. (KB)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED129255

Curriculum Elements of Graduate Education:
A Brief Case Study on the Evaluation of a Doctoral Program

by

Thomas M. Schwen

Director, Division of Development and Special Projects

Audio Visual Center

Indiana University

Bloomington, Ind. 47401

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

A paper prepared for the Annual Meeting of the Association for Educational Communications and Technology, March 28-April 3, 1976.

IR004031

Curriculum Elements of Graduate Education:
A Brief Case Study on the Evaluation of a Doctoral Program

by Thomas M. Schwen

This paper contains a brief, interpretive, case study focused on the methodology used to evaluate a doctoral program in educational technology. In the recent literature on evaluation the distinction between decision making and judgment is often made (e.g., Scriven [2]) Until recently we, as educators, have written and behaved as if our scientific procedures permitted us to make yes/no, pass/fail, no/no go decisions. Our criterion referenced tests, attitude surveys, prototype testing, etc., lead to decision matrices that permitted the clear resolution of our problems in a network of dichotomous or, with sophistication, trichotomous decisions. Of course, this is an overstatement, but it is hard to deny the influence of rampant empiricism that constitutes our common past.

Our colleagues in evaluation have helped to free us from the narrow minded empiricism that has restricted our thinking. It is becoming, increasingly, legitimate to make judgments about the important phenomena in our professional areas of concern. It is conceivable that an evaluation of a curriculum, instructional products, development processes and the like can include 'qualitative' data and that the considered judgments following such an evaluation will be considered 'significant' without reference to an analysis of variance table.

If the reader will forgive the hyperbole, patently redundant hyperbole, at that, we seem to be entering a period to which balance is an important principle. A whole host of book announcements tantalize in a weekly barrage of announcements concerning: action oriented evaluations, evaluation dictionaires, conclusion oriented case studies, and the like. The forces of empiricism and judgment would seem to be

in a state of compromise. Appropriate matching of qualitative methodologies to empirical problems is a phrase which seems to describe the current posture of evaluation efforts.

This introduction is, of course, a caveat which places the following abbreviated case study in context. The Division of Instructional Systems Technology (hereafter DIST) is one of five administrative units in the School of Education (hereafter School) at Indiana University. It is, also, one of the largest doctoral programs in Education at Indiana and the largest in Educational Technology in the nation. Beginning late in the 1960's a series of events prompted the program leadership to engage in a lengthy and comprehensive self evaluation of its graduate curriculum. The formal evaluation activity began in ernest in 1972 and is, technically, still in progress.

The methodology of the evaluation is the focus of the case rather than the results. As noted, the evaluation is still in progress. Also, for other reasons, which will become obvious, it is the author's judgment that there is more to be gained from a review of the methodology than from a sampling of the rather extensive results.

The methodology grew out of conscious attempts to come to grips with the complex reality of the doctoral program in such a manner that would avoid under-representation of the abstract and complex forces that play on it, on the one hand, and obfuscation of weaknesses and strengths by persuasive or subjective instrumentation, on the other. All parties involved were in substantial agreement on the principle of balance between subject and objective data. The inevitable differences of opinion focused on the operationalization of the criteria and questions which followed. The nature of this conflict and the compromises which resulted seem to offer a profitable example for consideration.

Background

Before the methodology is discussed some contextual information is in order. As noted above, the DIST incorporates one of the largest doctoral programs in the School of Education. Twenty three doctoral level faculty serve the program. These faculty are all on joint appointments with either the Audio-Visual Center or other academic units in the School. The School funds approximately 11 full-time-equivalent positions. Approximately 100 doctoral students are in residence at any one time and the median for degrees awarded has been, approximately, 20 per calendar year in the last five years. The students have been recruited from and placed in all fifty states and over 100 foreign countries. Approximately 20% (20 per year) of the students have been from foreign countries in recent years.

The students may elect to concentrate in or combine aspects of four emphasis areas: Message Design (production), Instructional Development, Diffusion and Adoption of Educational Innovations, and Administration of Learning Resources Programs. Also, the student may combine the above with other thematic specializations within the DIST such as research. Finally, other studies outside of the Division such as Evaluation, Educational Psychology, Radio and Television, Organizational Behavior (Business), etc., are required in the doctoral program. In point of fact, there are probably no two doctoral programs that have included the same profile of studies. Although the staff of the Division almost universally considers this state of affairs an advantage, there are disadvantages in managing and articulating the program to students and evaluators, for that matter.

The content categories named above are reduced to four functional

categories in planning individual courses of study. Each student is required to complete: an 18 semester-hour-core of inquiry skills (e.g., statistics) and analytic perspectives (e.g., philosophy); a 45 semester hour major (a combination of the emphasis areas) and two 15 hour minors (e.g., Evaluation, Radio and Television, etc.). The ideal chronology for an individual program would include one post-bachelors year of introductory coursework, a second year of advanced seminars and skill building courses, and a third year of qualifying exams, dissertation seminars, research, and completion of the degree. The three year pattern does not describe the majority of students in residence. It is quite common for students to spend all or portions of a fourth year completing their work. Most students are employed in funded internships by either the Audio-Visual Center or other development laboratories during their academic tenure at Indiana. These internships account for much of the deviation from the three year pattern. Another deviation from the pattern may be seen in the 50% of the students who transfer some portion of their graduate program to Indiana from other institutions.

The DIST faculty developed the aforementioned curriculum pattern in the period from 1968-1971. Although many factors influenced that curricular revision it is possible to argue that there were two primary concepts that motivated the revision. (1) The concept of technology was undergoing rapid change. The concepts of process such as systems analysis, instructional development, message design, and diffusion and adoption were quite prominent in the new course offerings developed at that time. (2) Also, the concept of the RDD&E model clearly influenced the curriculum planners. The older specializations of Utilization, Production and Management were replaced by: a Research theme; the

Instructional Development, Message Design, and Diffusion and Adoption, emphasis areas. The management category was retained and early attempts to organize an evaluation component of the curriculum were superceded by developments outside the divison. (As noted above this area is a minor chosen by some of our students.) At one time the faculty listed 35 experimental courses during this process of revision. At the end of the active period of curriculum revision 12 new courses had been added to the curriculum. Of the current 37 courses offered, (Appendix D) six of the old courses were thoroughly revised. Of the 19 remaining courses, it is fair to observe all were substantially modified. These necessarily sketchy details are a pale representation of the intellectual ferment that characterized that period. In any event, by the end of that period most faculty and students were quite anxious to assess the changes in the curriculum.

In addition to the internal push for evaluation, a series of events outside the Division helped bring about the evaluation process. In 1969, the Graduate School initiated a review of all Graduate Programs offering the Ph.D. The first experiences with that review were quite controversial. Two programs in the School lost their Ph.D. status: as a result of the ensuing furor the review process was halted and the School subsequently initiated its own review. Essentially, the argument was that the School would conduct a more thorough review than the Graduate School and then return to the Graduate School reviews. As of this writing the School reviews have been embroiled in their own controversy, and with a change in administration, the process created by the School would appear to have been tabled. The controversy created by review processes did not deter the leadership of DIST. The faculty has completed the first phase of the School review and is awaiting a formal response from

the School administration. This review process will be explained in more detail below. Also, the significance of the controversy surrounding the review processes will be incorporated in subsequent discussions.

Methodology

It should be noted that a number of individuals and committees contributed to the methodology described below. Egon Guba, an early advocate of the CIPP model (3) was most influential in developing the conceptual structure for the evaluation. The structure was created by a statement of formal criteria that applied to the evaluation of all doctoral programs (Appendix A). Guba deliberately chose formal (external) rather than substantive (intrinsic) criteria. This decision allowed him to avoid the cost and political problems of bringing outside experts to make substantive judgments about doctoral programs on the one hand, or to ask the School's faculty to make substantive judgments concerning programs outside their areas of expertise, on the other. In other words, he argued that there are a set of formal criteria (with accompanying data) that allow faculty with divergent backgrounds to make judgments about the strengths and weaknesses of doctoral programs. This was the seminal argument of the evaluation process. Once the faculty agreed to this assertion, any other arguments could be resolved by a process of compromise. The nature of the formal criteria will be discussed in more detail in the material which follows.

The Advanced Graduate Studies Committee (1969-70) of the School was responsible for suggesting means of operationalizing the criteria (Appendix B). The usual conditional statement concerning credit due the original authors and this author's responsibility for misinterpretation and misrepresentation is appropriate here.

Conceptual Structure

Guba's (Table 1) formal criteria were, obviously, designed from the perspective a systems model such as CIPP (3).

Insert Table 1 about here

It is interesting to note, however, that this superordinate structure (figure 1) was never explained to the School's faculty at large. The structure represented in figure 1 is an interpretation by this author and his assistants.*

Figure 1 about here

The systematic concept of the doctoral program is, obviously, student oriented. Students are input and output variables with the major process variables stated in terms of clusters of student activities. The Context variables are a collective of more traditional administrative concerns. This structure is deceptively simple. Although it had a persuasive logic or integrity about it, the program faculties did express concern when using the structure to make judgments about their curricula.

Some faculty were concerned about the basic assumption of the model. Students are certainly important even primary outputs or products of any curriculum or program. However, there are many other program outcomes that a different systematic concept could have elucidated such as, national leadership, influence on other curricula in the same or related disciplines, service to the School and University, etc.

---

* A special acknowledgment is given to Dr. Gene Wilkinson, Assistant Professor of Education at the University of Georgia, who was formally an assistant to the author.

In other words, some faculty were concerned about underrepresentation of their strengths.

There were other concerns as well. Casting the faculty, fiscal resources and competencies as Context rather than Process variables created some dissonance. The conflict is difficult to summarize, however, conceptualizing the variables in this fashion seems to cast them in a less dynamic or more static framework. To many faculty their budgets, general goals or program competencies, and their colleagues were at least as dynamic in their personal concepts of program as student development and inquiry activities.

After the fact, these criticisms can be reconstructed in a more articulate fashion than they were originally stated. In the negotiation about the process each program was permitted to redesign its own model and procedures. None of the 21 doctoral programs made a modification of the conceptual structure. There is little doubt in the author's mind that much of the early dissonance can be associated with personal and collective anxiety on the part of the faculty.

The structure had many strengths. Any social science analytic process destroys some aspect of the reality it examines (Schwen [1]). In this case, despite the aforementioned weaknesses, the model imposed a concept of the doctoral program which created a rigorous and rather complete student perspective. The structure captured the essential elements of the doctoral program in a fashion which permitted a continuous dynamic concept of the student program to emerge. It was, for example, far easier to articulate the logical and empirical connections between inquiry training and the scholarly production of graduates or the link between practicum activities and the types of positions graduates occupy. In the case of the DIST it forced the faculty to create a more

articulate set of interconnections between all its diverse program elements.

In summary, the criticisms of the conceptual structure of the model focused on its omissions. Its enduring strength after critical analysis was probably due to its simple but persuasive perspective on the 'studenting' process. Also, it is fair to acknowledge that a single articulate argument will often be more persuasive than anxious diffuse responses.

Criteria

The criteria listed in Table 2 are stated in the manner in which they were operationalized. The original statement of criteria (Appendix A)

Insert Table 2 about here

separated competency-based and multiple experience program attributes into two criteria (#3). The reader is advised to see Appendix A for a more complete discussion of all criteria. This writer will attempt to summarize the faculties' reactions, particularly the DIST faculty reaction. The first doctoral program to test the process was the English Education faculty. In retrospect, it is interesting to note that their response signaled much of the negative reaction that would follow. The initial reaction, one repeated by all groups that used the process, was that each of the criteria were more or less defendable but that the amount of time that it took to collect data on all criteria outweighed the advantages of the review. This group raised another issue which reverberated throughout the rest of the School. They took singular exception to criterion two. The group interpreted the phrase competency-based as meaning behavioral objectives.

They argued in conjunction with the position of their national association, that behavioral objectives are overused and they would misrepresent the complex understandings that they were attempting to develop in their students. Many of the early exchanges were quite heated. Finally, the program modified its procedure of reporting to include goals or lists of understandings. This modification was of the type anticipated by the evaluation documents. The intensity of the reaction probably signaled the anxiety of the faculty as well as a genuine intellectual issue.

There were diffuse reactions to the criteria by other faculty groups. Most faculty groups had not formally designed self renewal plans (#10) and so the review process was, in effect, asking them to modify their collective behaviors. There were many specific intellectual objections to that criterion that could probably be summarized by the observation that graduate faculty groups are quite independent of administrative authority and they are slow to modify their departmental procedures. The only other substantive reaction observed by this author was to criterion 3 (individualization). Again, there were a number of diffuse responses that, probably, marked a more basic objection. Most doctoral faculty's personal concept of the doctoral program is one of a series of personal interactions between themselves and their students. To many faculty this is the epitome of individualization, therefore, the statement of this criterion seemed overly formal and redundant.

The DIST reactions to the criteria were fairly typical. This was surprising, initially. The author had not anticipated that the faculty would object to the statement of a competency based curriculum. There seemed to be two parts to the argument. To many, the process was disfunctional because of its complexity. They argued that the long

lists of behavioral objectives would do more to obfuscate the curriculum pattern then to clarify it. (The reader is reminded that this dialogue took place in 1972-73 before the recent widespread disenchantment with behavioral objectives was in vogue.) In addition, some faculty took the English Education faculty's position; they agreed that many of the understandings taught in the curriculum could not be appropriately defined in behavioral terms. They argued that complex evaluation behaviors, for example, would be distorted or misrepresented in the behavioral objective format. These arguments had been latent or unspoken before the review. As noted above, they surprised the author, at the time, however, the dialogue ultimately resulted in a better understanding of the issues involved. The DIST faculty were somewhat more favorably disposed to Criterion 3 (Individualization) because of the size of the faculty and the diversity of curriculum experiences. They essentially felt that this was a strength of the program, but the complexity of the situation suggested careful analysis. Also, the faculty felt that criterion 10 (self renewal) would allow the program to explicate the recent curriculum review. Finally, criterion 9 (resources) presented some technical problems, because the DIST budget was not clearly separated from the A-V Center budget at that time.

In summary, neither School's faculty at large or the DIST faculty raised many substantive criticisms to the criteria. The objections that did arise, e.g., criterion 2, (competencies) were ameliorated by changes in the method of reporting.

Implementation of the Review

The concept of the review was clearly explicated as formative in nature. The program areas were to develop long term data collection procedures that would permit a replication of the procedures on a five

year basis. The administration proposed that the assessment would lead to negotiations where strengths and weaknesses would be reviewed and remedial action would be mutually determined where necessary. Although the formative concept was clearly stated, it would appear that it was not persuasive. Many individuals and groups of faculty were, obviously, defensive. The faculty were quite creative in delaying the process. There were many long meetings devoted to explaining the process and still more meetings clarifying misunderstandings. In addition, the English Education Review (the first trial of this process) lasted at least three times longer than had been planned. The faculty council reviewed evaluation documents at various times further delaying the process. Of course, it is difficult to separate anxiety from genuine intellectual responses. The author is willing to assert that six years of dialogue concerning the efficacy of the process may be interpreted as more than a purposeful discussion of a commonly agreed upon goal.

The mechanism that was proposed for implementing the evaluation involved five steps. (1) The program faculty were to be assembled and introduced to the evaluation process. (2) The faculty would review the process, make adaptations where necessary and organize its members to complete the process. (3) The implementation and write up would follow,running from three to six months. (4) The completed document would be delivered to a group of three faculty reviewers. (This review panel would have been selected by the program faculty undergoing the evaluation.) The reviewers would spend one to three months analyzing the report and summarizing their reactions in writing. They would be allowed to communicate with program and request additional information or revisions. (5) Finally, a three way meeting between the program

leadership, the review board chairperson, and the Associate Dean for Graduate Study would summarize the process and decide on what remedial actions were necessary, if any. The DIST has completed phases 1-4.

Instrumentation

The operationalization of the criteria has been summarized in Table 2. A more detailed discussion of the procedures may be found in Appendix B. As suggested earlier, there was a great deal of controversy concerning these procedures. There were both general and specific criticisms. The most general and wide spread response was that the procedures required: much more time than the faculty could reasonably invest or at least a disproportionate investment for the amount of return. The administrative response was that most information could be gathered by clerical staff and that once the information procedures were established, subsequent evaluations would proceed more efficiently. In addition, the administration argued that the evaluation process should enjoy a high priority, especially, in light of the experience with the Graduate School Reviews. Finally, the administration argued that specific modifications were always possible in accumulating the types of evidence. The administrators appeared to win the argument; the process continued, with more time allowed to complete each phase, especially phases 1, 2, and 3. The DIST faculty volunteered to be a part of the first complete cycle of evaluations. The evaluations were to be cycled on a five year basis, one fifth of the doctoral programs beginning the process in any one calendar year.

The specific criticisms of the procedures for collecting data were quite numerous. The request for a common listing of competencies (#3) hierarchically ordered (#4, #13) created a great deal of dissonance.

The arguments were an extension of the general problem with the competency based criterion. In addition, the specific suggestions for validating the hierarchy (Appendix B) were questionable at best and probably invalid. Most programs, including the DIST, developed a set of logically derived goals and competencies without attempting to validate the structure.

The analyses of five years of students via their records and by questionnaire was, also, a subject of concern. For some programs, including the DIST, this amounted to 100 students or more. For the smaller programs this constituted a very small sample. In other words, the sample was too large in some cases and too small in others.

Many programs had not systematically catalogued their curriculum experiences, e.g., #3, #11, #13, #15, etc., therefore, there was some general complaints about the inconvenience.

Many criticisms, as noted previously, were a function of the resistance to initiating new means of documenting activities, e.g., #2, the self-evaluation plan; #9, analysis of selection criteria; etc., the data collection procedures were in effect calling for more complete documentation of doctoral programs than was common in previous practices. There were many individual adaptations to the suggestions and there was general encouragement for this trend by the administration. They reasoned that the recommendations were just that and there would be many alternate methods for operationalizing such abstract criteria.

The DIST collected most of the data suggested in Table 2. The major exception was with #4, the hierarchical statement of competencies. As noted, the faculty used a logically derived hierarchical statement of goals within each emphasis area. A core of competencies was also

developed; it included the general understandings and skills required of all students and the common research or inquiry skills required of all students. There were some embellishments, e.g., #18, evaluation of faculty; there were several surveys and related reports available ranking the major educational technology programs. The faculty incorporated several of these in its report.

Organization of the Process

The organization of the data collection procedures was the responsibility of this author. It was a rather complicated affair due to the extent of data required and the fact that much of the individual categories of data related to several criteria. After some deliberation a PERT (Appendix C) system was developed to coordinate the procedures. Also, individual faculty members were assigned to develop and write chapters of the report which coincided with the 10 criteria. The PERT process was only minimally successful. The DIST faculty were generally supportive; however, there were many delays in the development of competency statements, the statement of evaluation procedures, and the statement of development and inquiry activities. These first order activities required a great deal of small group and individual effort. The inevitable delays associated with this process created further delays in the preparation of the questionnaire and other activities further down the critical PERT paths. This author and the DIST leadership seriously underestimated the time required to finish the project. The data collection phase took approximately 18 months to complete.

Although the positions of the School's faculty and administrators has been delineated in a logical fashion (More or less!), the dialogue

was not ordered or logical in many instances. As noted above, the evaluation process seemed to be a focus of considerable anxiety. There were many misinterpretations of the documents, the communiques that were exchanged, etc. The DIST faculty remained reasonably aloof from this dissonant dialogue. Most faculty felt that they were dealing from a position of strength. The Division chairman and other leaders argued that the program was strong and whatever weaknesses were uncovered could be ameliorated. Many of the larger more established doctoral programs of the School took the same position.

In delineating the 'reality' of the evaluation process it is difficult to overestimate the group dynamics that influenced the progress of the evaluation. The process was initiated during a period of stress (two doctoral programs losing Ph.D. status). Many faculty groups seemed to perceive the process as a frontal attack on their collective future. In addition, the process was quite complex and cumbersome. Many faculty, including some in the DIST, regarded the process as an inordinately awkward device which had little potential for realizing utilitarian changes in the doctoral programs. These more emotive reactions certainly influenced 'substantive' reactions of the faculty to the process.

Epilogue

A summary or conclusion section is not appropriate here, because the evaluation was not completed. As discussed, the faculty groups delayed the process for six years. Recently, a new administration has assumed the leadership of the School and have, to date, been reluctant to pursue the process. The reader may, rightfully, ask, "For what purpose is the case offered?" The answer has two parts.

First, the reader has the basic rudiments of a curriculum evaluation plan designed to assess a complex doctoral program. It seemed to the author that there were not many 'live' examples of this type of plan in the literature. The reader has a rough record of the substantive criticisms directed toward the plan with appropriate qualifications about the situational dynamics which may have influenced their criticisms.

Second, the reader has a terse representation of faculty-administration dialogue regarding the plan. The specifics of the situation are not generalizable in the technical sense of that word. It would appear, however, that the reader may profit from observing other professionals invest hundreds of hours in a series of activities that result in little or no observable effect on a doctoral program.

These statements are not intended to suggest that the faculty of the DIST did not gain a more complete understanding of its complex doctoral program, or that the faculty may not have developed a more confident attitude about its strengths, or that the faculty did not develop a more articulate notion of its weaknesses. The author will advance the assertion that evaluation process as <u>it developed in this situation</u> clouded those real or potential understandings. There is now less of a probability that these understandings will be directed toward purposeful action than if no evaluation had been planned or partially implemented.

The author's remaining unanswered question is, "Was the faculty response concerning the complexity of the evaluation valid?" The decision to use formal criteria was insightful. The definition of the conceptual structure was clear and parsimonious. The operationalization of the criteria logically followed both the structure and the

individual meaning of the criteria. The collective effect of the evaluation process was disabling in this circumstance.

Bibliography

1. Schwen, Thomas M. "Learner Analysis: Some Process and Content Concerns." Audio Visual Communications Review, Spring, 1973.

2. Scriven, Michael. "Evaluation Perspectives and Procedures." in Evaluation in Education with James Popham, ed. McCutchan Publishing Corp., Berkley, 1974.

3. Stufflebeam, Daniel L., et al. Educational Evaluation and Decision Making. F. E. Peacock Publishers, Inc.: Itasca, Ill., 1971.

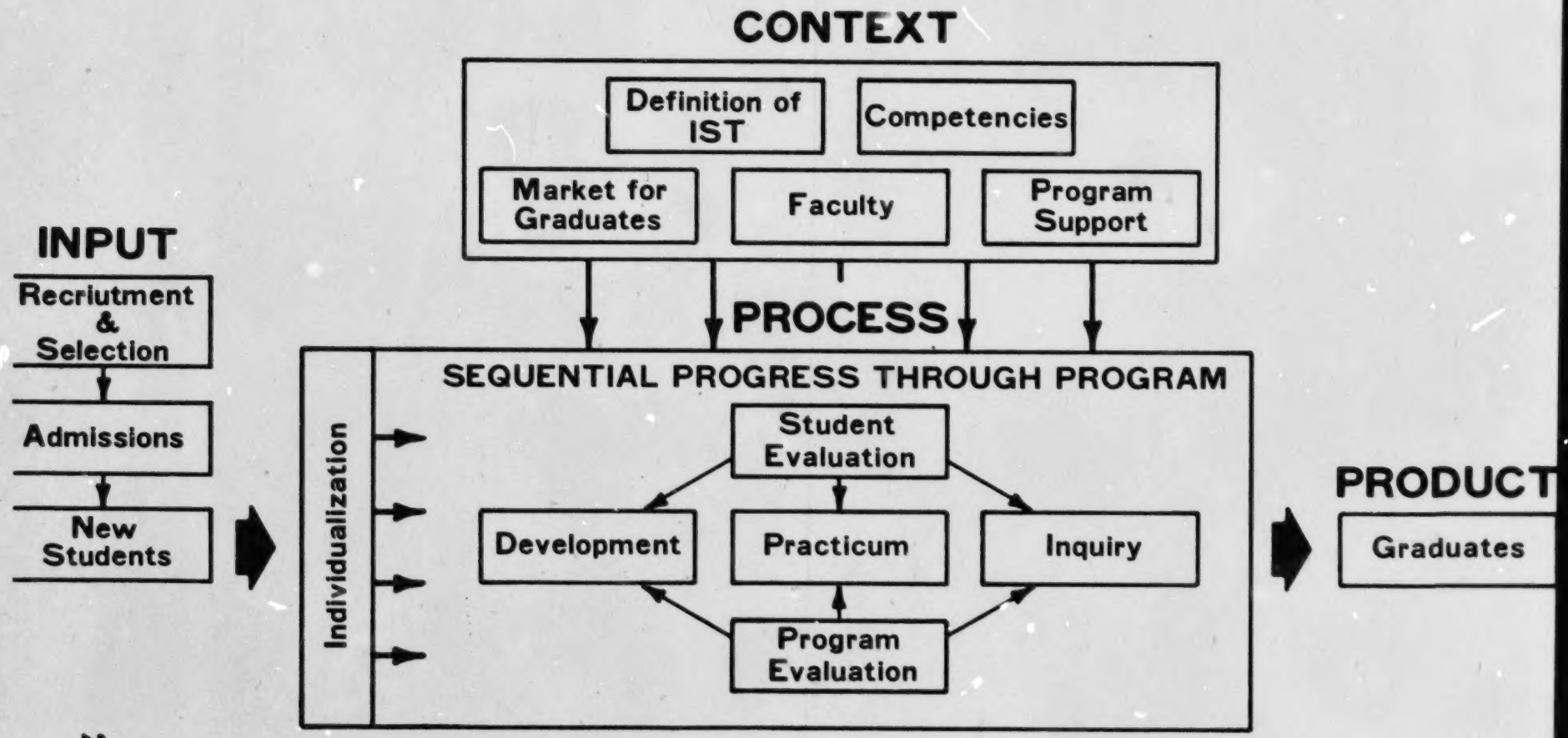


FIGURE 1: THE CONCEPTUAL STRUCTURE USED TO GUIDE THE EVALUATION

1. The program should display an integrity or wholeness.
2. The program should be competency-based; and the program should provide multiple experiences that permit achievement of every competency that is required.
3. The program should be capable of a great deal of individualization.
4. The program should rest on sound student recruitment and selection criteria.
5. The program should provide for theory-practice integration.
6. The program should possess sophistication and rigor.
7. The program should be inquiry oriented.
8. The program should rest upon a quality faculty.
9. The program should be supported by adequate facilities, equipment, and other resources.
10. The program should make explicit provision for self-renewal.

TABLE 1: CRITERIA FOR EVALUATION OF DOCTORAL PROGRAMS IN THE SCHOOL OF EDUCATION

Data to be collected	Needed for Criteria
1. List of all graduates of past five years with a description of present positions.	1
2. A position paper describing the parameters of the area.	1
3. A listing of common competencies of all doctoral graduates.	1
4. A hierarchically ordered list of competencies which comprise the entire field. This list should be accompanied by the program experiences provided to achieve the competencies.	2
5. Dossiers of all graduates of the past five years.	3
6. Questionnaire to all graduates of the past five years.	3
7. An analysis of student evaluation procedures.	3
8. Description of student selection criteria; rationale for the selection criteria.	
9. Description of how selection criteria are operating.	4
10. Description of student recruitment practices.	4
11. Descriptions of development activities of faculty and students.	5
12. Descriptions of practicum activities of the program area.	6
13. Hierarchical listing of program area experiences.	6
14. Description of inquiry oriented competencies of doctoral students.	7
15. Descriptions of activities provided for student to apply inquiry skills.	7

16. Descriptions of inquiry oriented activities of faculty and students. 7

17. Faculty activities in teaching, research, and service - also, included should be those who resigned and those who were offered positions but decided not to accept. 8

18. Questionnaire to departmental chairmen throughout the country evaluating the area faculty. 8

19. Budget allowances for program area. 9

20. Description of facilities. 9

21. Description of the programs self evaluation plan. 10

TABLE 2: A SUMMARY OF EVIDENCE REQUIRED.

APPENDIX A

CRITERIA FOR RATIFYING PROGRAMS LEADING TO THE DEGREE, DOCTOR OF EDUCATION

December, 1972

CRITERIA FOR RATIFYING PROGRAMS LEADING TO THE DEGREE, DOCTOR OF EDUCATION

School of Education
Indiana University

Approved by Policy Council
February 10, 1971

At the present time[1] there exist in the School of Education of Indiana University 20 programs leading to the degree, Doctor of Education. Most of these programs have been in existence for a number of decades, and a substantial time has passed since their original approval. During that interim the world of professional education has changed markedly, as even a casual observer of the scene can attest. It is likely that over the next decade circumstances and conditions will alter even more dramatically. In the face of this challenge, the School of Education must look to the quality, relevance, and flexibility of the programs it offers. At the undergraduate level, and to some extent at the Fifth Year level, reviews and reformulations are already under way through the mechanism of the Commission on Teacher Education. At the Fifth Year level, moreover, all departments and program areas are currently redefining their core requirements. Similar reviews are mandated at the doctoral level, and will be carried out by the Advanced Graduate Studies Committee commencing during the present academic year. The purpose of this document is to set forth the criteria that will be used by that Committee in assessing the quality, relevance, and flexibility of current programs as well as any others that may be proposed.

The statement is divided into four parts. Part I deals with certain criteria that are frequently but erroneously cited as relevant to doctoral programs; the purpose of the part is to lay these to rest. Part II deals with the purposes of doctoral programs and provides a general base for interpreting the criteria to be proposed in Part IV. Part III is concerned with drawing a distinction between substantive and formal criteria, and argues that only formal criteria are appropriate for a general review of the sort to be made by the Advanced Graduate Studies Committee. Finally in Part IV, eleven formal criteria are proposed and explicated which will serve as the basis for the Committee's review.

I. Some Invalid Criteria

There exist certain criteria which are frequently cited as having validity for judging the suitability of doctoral programs but which are in fact as experience has shown, infalid for that purpose. These criteria are briefly mentioned below and an argument is made against their validity.

1. Professionalism. Doctoral programs by long tradition are said to eschew professionalism. "Professionalism" in this sense refers to a kind of vocationalism where the pruposes of the vocation differ from the purpose of the university to advance knowledge. For example, the purpose of the vocation "philosopher" is the advancement of knowledge and so a program in philosophy is not considered to be a professional program; while the purpose of the vocation "teacher" is not the advancement of knowledge and so a teacher education program is considered to be a professional program.

---

[1]Fall, 1970.

There are two problems with this approach. First, it confuses lower level training of practitioners with higher level training of students of professional problems. Thus, there is no doubt that the training of elementary or secondary teachers, of accountants or marketing executives, of chemical laboratory technicians, or of United Nations foreign language translators is professional training in this sense, but it does not follow therefore that the training of students of the learning process, of finance, of research chemistry, or of linguistics is also professional training simply because it happens to take place within the identical institutional setting (i.e., a given department or school) or under the guidance of the identical faculty members. One ought not, that is, consider a doctoral program in a school which has a teacher training program to itself be a teacher training program by virtue of that continuity.

There is a second difficulty with this insistence on separating pursuit of knowledge as a professional goal from pursuit of some practical vocation, and that is, that all doctoral programs do prepare a candidate, however effectively or ineffectively, for some career. In this sense all graduate departments can be arranged along some continuum of professionalism. There is no doubt that the chemistry candidate is preparing to be a professional chemist; that the sociology candidate is preparing to be a professional sociologist; that the economics candidate is preparing to be a professional economist, just as it is clear that the education candidate is preparing to be a professional educationist. The rigorous application of a non-professionalism criterion would result in the rejection of almost every doctoral program in existence.

Thus it seems reasonable to assert that the criterion of professionalism is a false one with which an emergent graduate school ought not to be concerned.

2. Pure knowledge. Just as they are traditionally not to be concerned with professionalism, doctoral programs are not to deal in applied knowledge. The pure-applied dichotomy is frequently drawn; it is asserted that a graduate department should deal only in pure knowledge and should see to it that doctoral dissertations are genuine contributions to knowledge.

This argument is patently specious. In the first place, the distinction between pure and applied knowledge is not absolute; if it is worth drawing at all it is only as theoretical ends of a knowledge continuum. It is likely that no knowledge is in fact representative of the farthest ends of this continuum; that, on the contrary, almost all knowledge occupies an intermediate position. Furthermore, there is an enormous interaction between these two varieties of knowledge so that it is in fact impossible to pursue one without involving the other (or nearly so; consider the nearly two millenia required by mathematicians to "free" the assumptions of Euclidian geometry from real world physical referrents).

A recent effort in the social sciences germane to this problem has been the attempt by Cronbach and others to distinguish "conclusion-oriented" from "decision-oriented" inquiry. The former presumably leads to relatively more "pure" knowledge and the latter to relatively more "applied" knowledge.

This analytic distinction has proved useful in resolving some of the differences among classic and emergent theoreticians over the proper methodology for evaluation and other accountability processes. While one can argue over the exact degree of validity of the formulation, the mere fact of its existence does indicate that the issue of pure vs. applied knowledge is by no means resolved in the minds of even leading thinkers. If this be the case, its use as a criterion for judging doctoral programs is surely questionable.

3. Objectivity. Every discipline has its own methods, and one of the objects of doctoral level training is to produce a practitioner of the discipline who can use those methods in a completely impersonal way. It is argued that no discipline can be a true discipline unless its adherents can produce essentially similar findings in its pursuit. Hence every man must make himself completely submissive to the discipline (indeed, this fact may be the major justification of even calling an area by the term "discipline") if he is to be an acceptable practitioner, well regarded by his colleagues, and trustworthy to induct others. The man who wishes, in the common parlance of the day, to "do his own thing," essentially a monolith, uncompromising in its demeanor, which exacts conformity from every candidate, at least until he proves himself competent and reliable.

Such a position is hardly compelling. If gains in knowledge were in fact made only incrementally, with each bit patiently and painstakingly fashioned so as to fit onto what had gone before, this position might be maintained with greater conviction. But many gains, and certainly all break-through gains, are not made in this way; history is full of examples to the contrary. Indeed, the university has accepted the essential soundness of the inverse position by its arguments for academic freedom, which is designed to allow a man to pursue truth wherever it may lead him and to propose ideas without fear of repression or derision. If doctoral programs are to take full advantage of the normal processes by which progress is achieved, they must be flexible, open, offering alternatives, and nuturant of individual differences in point of view and interest. Jancks and Riesman have referred to the need for "more mobility and anarchy" in graduate programs, and for the legitimation of more flexible and more cross-disciplinary processes. This is a call which the emergent graduate school can ignore only at the risk of its own demise.

4. Omnicapability. Present doctoral programs are typically designed to turn out interchangeable parts--professionals who can take up any duties that are properly within the domain of the discipline and carry them out with competence and skill. In part this is the result of faculty porkbarreling, with each specialist having his turn at the graduate students and allowing everyone else his due; and in part the result of a sincere desire to train a "well-rounded" individual. Thus, all candidates are exposed to all aspects of the discipline and become equally competent (or incompetent) at all, save only that area which, by serving as a focus for the dissertation, receives somewhat more detailed attention.

But this situtation is hardly desirable. First of all, it ignores the fact that different interests, different aptitutdes, and different competencies. Second, it ignores the fact that different candidates will pursue

different career lines that require somewhat different training. Finally, it ignores the rapid changes in knowledge that produce more and more specialization and that tend to turn traditional discipline areas into a series of only distantly related sub-specialities (indeed, it is often the case that communication is easier between incumbents of new sub-specialties of different disciplines that between incumbents of a sub-specialty and a parent discipline). All of these factors call for differential training and a rejection of a program that manufactures identical products.

II. Purposes of a Doctoral Program

The preceding section attempted to lay to rest certain criteria that are not applicable to a doctoral program. Before proceeding to a discussion of applicable criteria, it will be useful to consider briefly what the purposes of a doctoral program are. In the absence of a statement of purposes it will be difficult to judge the appropriateness of any criterion that might be proposed. These purposes include at least the following:

1. To advance knowledge and to stimulate inquiry. Probably the most general purpose of a doctoral program is to extend knowledge, particularly through inquiry. The dissertation is not merely a hurdle which a student must be able to jump; it is intended to be a genuine contribution to extending the knowledge frontier. This is not an argument for "pure" knowledge, as that term was used earlier, but rather for focussing on that part of the world and its activities which are the peculiar domain of the academic. Indeed, to a very great extent, universities are established by society for the purpose of generating knowledge, and doctoral programs are a key part of that general goal. Criteria that are proposed must therefore deal explicitly with this purpose.

2. To impart certain high level competencies and skills. The doctoral program is intended to bring the candidate to the frontiers of knowledge in a given discipline, to bring him into the vanguard of inquirers and workers. The competencies and skills that are required to bring him to this level are both substantive and methodological, and it is in their mastery that a candidate can claim privileged membership in a professional group. The criteria must therefore be concerned with providing for this content and methods mastery.

3. To reproduce members of the profession or discipline area. The doctoral program is the final training ground in which members of a profession or discipline area can reproduce themselves. Taking this purpose into account in setting criteria means asking whether proposed criteria do in fact stimulate this reproduction on the one hand, and whether they militate against the reporduction of undesirable characteristics, on the other. The concern must be, so to speak, with whether the criteria deal adequately with the "genetics" of the situation.

4. To license or credential professional activity. Professional activity takes place within some organizational and social context. One

purpose of granting a degree is to provide assurance that the impact will be positive and within ethical limits. Any proposed criteria must be concerned with affording protection against fraudulent practice, both in relation to other members of the profession or discipline area and to persons outside that area.

III. A Distinction Between Formal and Substantive Criteria

Generally speaking, criteria can be cast in one of two modes: they can be formal, i.e., dealing with the form of extrinsic aspect of the thing to be judged or with the conventions covering its use; or they can be substantive, dealing with the content or intrinsic aspect. The latter judgments can be made only by someone who is familiar with the content, for obvious reasons, and in the case of a doctoral program, that clearly means the faculty members who inhabit the department whose graduate program it is. This fact produces an immediate problem, however, for if the best substantive judgments can be rendered only by the specialists in the discipline, how can one be sure that the judgments are objective? Having proffered a program, can a department find it anything else than valid?

This is a serious dilemma, and one that is constantly confronted by any group, such as the Advanced Graduate Studies Committee, that is attempting to render quality judgments about the substantive aspects of the programs. Surely that Committee, or any other similar body, would not claim omniscience for itself; it is very likely to make "mistakes" unless some mechanism is used to guard against them.

One way to deal with the problem is simply to ignore it. One can admit its presence, and then say, "But every department that comes before us is subject to this same difficulty," as though this equal applicantion of inequity excuses its intrusion. If the mistakes made by an inexpert group in rendering quality judgments were systematicaly biased; this argument might make some sense, for everyone would be equally disadvantaged (or advantaged, depending on the nature of the bias). But the errors, because they are based on ignorance, are much more likely to be random, so that one department is advantaged while another is disadvantaged. Inequities of this sort simply cannot be tolerated.

Another way to handle this problem is to utilize reviewers from related areas. Thus, a physics program might be reviewed by persons from chemistry, astronomy, and mathematics; or a psychology department by persons from sociology, anthropology, and political science. But the undeniable fact that their expertise in the area to be judged is tangential and limited makes it possible to raise questions about the judgments no matter how valid they may in fact be. Moreover, simple equity requires

that if there is to be a negative decision it ought to be made by persons who are at least as expert as those whose program is being denied approval.[1]

A third and most satisfactory way to handle this problem is to incorporate the judgments of persons from identical departments outside the University, at least in questionable cases. This can be done in two ways: by a direct outside evaluation, or by an "audit" of inside evaluation procedures and conclusions by an outside group. Such a group is in the best possible position to answer questions about program quality and faculty quality and while their judgment may still be questioned, it is at least as valid and undoubtedly more objective than that rendered by the department itself.

Given this dilemma (and whatever may be the method adopted to deal with it), it is at once apparent that it would make no sense to attempt to generate general substantive criteria for judging all doctoral programs. If substantive judgments depend upon an intimate and detailed knowledge of the field being judged, general criteria are impossible. Hence, it is only with formal criteria that this report is concerned.

IV. Some Formal Criteria

The criteria below are formal criteria offered as consistent with the point of view that has been espoused in the preceding sections. It is stressed that this listing is neither final nor complete, and should be subject to constant criticism, refinement, and extension.

---

[1]Programs in the School of Education stand in a peculiar relationship to this dilemma because it may be argued that many of them, e.g., educational psychology, are bi-dimensional, cutting across education and some other well-established discipline area. Hence, persons from those other disciplines are in a particularly good posture to render quality judgments. But this position argues for a kind of reductionism that may not be valid. This position (often called the "foundations approach to education") has been sharply critiqued by numbers of authors who have been concerned with the question of whether or not education is a unique science or discipline. Prominent among these writers is E. S. Maccia of the Department of History and Philosophy of the School of Education. The contention of these writers, based upon close philosophic analysis, is that education probably can be characterized as a separate science or discipline, and that at worst, one may regard this as an open question subject or empircial examination. On that ground, it may be mistaken simply to assume, without further evidence, that the bi-dimensionality of educational areas is real, or that the judgment of persons from apparently related areas has any more validity for education that it would have in other program areas.

1. The program should display an integrity or wholeness.[2] It must be more than simply a random collection of components: it must add up to something. But the requirement of adding up should not be inflexibly interpreted--it may add up to several things at once or to different times. Nor does this criterion imply a strict autonomy for an area in the sense that a program cannot depend for certain of its components upon other discipline areas (indeed, interdisciplinary dependencies are to be encouraged).

There are probably multiple ways in which such integrity can be demonstrated. One way is that a candidate, having proceeded through a program, will find particular employment opportunities awaiting him; his program has added up to something that the labor market recognizes. Another way is to show that common conceptual strands up through the various program elements. Yet another way is to relate the program to certain common phenomenon, as for example, when seemingly disparate work in sociology, linguistics, curriculum, economics, and health can all be shown to have relevance to inner city school problems. No doubt many other ways could be identified, but these examples will suffice to show that program integrity is readily demonstrable in a formal sense.

2. The program should be inquiry oriented. The hallmark of the well-trained doctoral student is an inquiring mind. Inquiry must therefore be at the heart of all training programs.

This statement should not be interpreted to mean that only pure knowledge should be the object of the inquiry. Efforts have recently been made to distinguish conclusion-oriented (that is, theoretical) from decision-oriented (that is, practical) inquiry. This is clearly a most useful distinction. It is patent that both forms of inquiry have a place in a graduate department, particularly if the decision to be serviced by decision-oriented inquiry is of sufficient importance. An interesting example is the present concern with ecology and environment; surely no graduate department would turn away from environmental inquiry simply because it is decision-oriented.

---

[2]The concept of integrity should not be interpreted as equivalent to saying that programs should represent traditional discipline areas. These traditional areas have been more or less arbitrarily defined, or the definitions have emerged largely as historical accidents. There are many other ways in which integrity can be demonstrated. So for example, the integrity of African Studies Programs is well understood, even though such programs may cut across traditional disciplinary lines such as economics, geography, sociology, and the like.

There are several useful indicators of whether or not a graduate department is in fact oriented. On would expect first that inquiry would be prized by the faculty, who would show their commitment through their own scholarly inquiry. Faculty writings would probably best demonstrate this commitment. Further, one would expect that students would be trained in methods of inquiry, whether explicitly, as they often are in social science departments, or implicitly, as they typically are in physical science departments. The effects of this training should be evident in doctoral dissertations. Finally, an inquiry orientation implies the existence of a substantial body of literature which can be tested, refined, or applied by virtue of faculty/student inquiry.

3. The program should possess sophistication and rigor. Obviously what can be expected in terms of this criterion depends to a very great extent on the degree of evolution of the discipline area in question, and therefore a judgment of sophistication and rigor comes close to being a substantive rather than a formal one. But what is meant here is capable of judgment in a formal sense. Included are the concepts of comprehensiveness, of scope, and of difficulty.

A doctoral program should certainly be pitched at a level which would be beyond the typical undergraduate student. So for example, the reading required ought to be substantially different from that which appears on typical undergraduate bibliographies. The pattern of progress through the program ought to be guided by sensible prerequisites which permit building up of difficulty and continuity as progress is made. The program ought to move into the frontiers of knowledge and serve as a useful heuristic for the candidate in guiding his inquiry as he moves into a full professional role. The program should reflect the most recent advances in the area and related areas. More than just learning or facts should be involved, and theory and methods should have a prominent role. Finally, the program should be related to a substantial and reasonable unique body of literature which is to be extended or applied, and which is the corpus of the professional knowledge in the area.

4. The program should provide for theory-practice integration. The problems of professionalism and pure knowledge have already been dealt with. Rather than to claim that it is essentially non-professional and non-applied, each graduate department ought to take specific steps to see to it that the knowledge which it generates can have practical significance. It is aptly said that if practice without theory is blind, theory without practice is empty. But such an expression is essentially meaningless unless specific steps are taken to bridge the gap, the mere expression of a pious hope is that direction is not sufficient.

Probably the best test for this criterion is the presence of development activity in a department which is particularly aimed at translating theory into practice and of reflecting practice to the theoretician by way of feedback. Specific examples of the way in which theory is translated into practically useful applications should be avail-

able. These might, for example, include packages of training materials, measurement instruments, organizational patterns, or other innovative applications. The relevance of theory for the real world can be constantly validated by these means.

5. The program should be competency-based. Another way of saying this is that all program requirements should be related to a set of competencies which have been defined as appropriate to a candidate in the area. Nor all competencies need to be required of all students; there may for example be a core of competencies to be mastered by all and other more specialized competencies from among which individual students may select as befits their interests or their career aspirations.

To meet this criterion a program area ought to be able to point to a listing of competencies, derived through an empirical study of what professionals in the area actually do; through conceptualization of what, under ideal circumstances, they might do; through study of the literature dealing with the area; and/or in other ways. The area should be able to show that the competencies were derived by some rational process and that various program elements and requirements have been analyzed to determine their particular contribution to these competencies. Competencies should, moreover, be defined in performance terms, and examinations and other evaluative procedures should be designated to permit the candidate to demonstrate that he has mastered the competency. Finally, the set of competencies should be ordered and articulated to provide the integrity alluded to in the first criterion above.

6. The program should provide multiple experiences that permit achievement of every competency that is required. These experiences may be of many sorts: didactic, vicarious (as in a film), laboratory (a kind of real-life simulation), or direct (as in an internship). Each experience must be appropriate to a particular competency (or set of competencies). The choice of which experiences to be undertaken to achieve each competancy should be left to the student under the guidance of his major professor.

The test of whether this criterion is met is simply the existence of such multiple experiences clearly defined, and the possiblity that a student may devise multiple routes through the program by selecting from different experiences to meet requirements.

7. The program should be capable of a great deal of individualization. This criterion in part follows from the preceding one, but is dictated mainly by the desire to avoid the problem of omnicapability. Each student ought to be able to select what seems to him (with guidance) to be an appropriate pattern of learning, leading to a somewhat different specialization from that of any other student. The making of such selections implies a systematic student evaluation procedure that permits determining the status and emergent needs of a student at any given time. All that should be required of him is that in making his selection he preserve the integrity called for in the first criterion above.

There are several possible tests for this criterion. First of all, the area should be able to display a variety of program options from among which selection can be made by a student. The area should be able to show that different selections can sensibly lead to assumption of different professional responsibilities. They should be able to demonstrate that students are encouraged to puruse, and have purused, different program assemblages. They should be able to point to concrete cases of graduates who differ notably from one another in the things they have been prepared to do and feel able to do.

8. The program should rest on sound student recruitment and selection criteria. It is a truism that a good program attracts good students. It is equally true that a program which is less than superior will cease to attract good students. While a sound reaction in this situation would be to reform the program, a more typical reaction is to reformulate selection criteria. No program area is likely to engage in self-liquidation; a reduction in the number of students is almost certain to be countered by an easing of entrance requirements. Thus, the level and quality of recruitment procedures and selection criteria is a good index of program quality.

A first indicator of whether this criterion is met is thus the existence of selection criteria. This should not be interpreted inflexibly, however. Different departments may utilize different criteria based on their own needs (e.g., a portfolio of art works would be an excellent selection base for art education but not elsewhere), and the same department may have different criteria for different kinds of students (e.g., recruits from culturally deprived populations). But a good program will have some means of assessing student aptitude (e.g., via the Graduate Record Examination or the Miller Analogies Test), and of determining whether the student prossesses an adequate knowledge based to enter rigorous doctoral training (e.g., by some process of determining amount and quality of past training and experience). The good program area will also avoid what has been aptly called "doctoral pollution," i.e., the overproduction of doctorates in areas or along career lines that are already overmanned; instead, the program area will take advantage of a buyer's market to raise its standards or to explore new avenues of training.

9. The program should rest upon a quality faculty. What constitutes a quality faculty is, of course, largely a substantive matter and hence beyond the pale of this paper. But there are certain formal matters that can be attended to that will provide some index of quality.

Certainly the nature and source of a faculty's degrees can be determined, as can the degree of institutional inbreading. The number and nature of a faculty's publication is easily assessable, as is the extent to which their writing is influential throughout the profession (measured, for example, by the number of time publications are quoted, reviewed, included in reference lists, etc.). In general, many of the

same criteria that are applied in determining whether a faculty member should be promoted or placed on tenure may also be applied here. Finally, and perhaps most importantly, the nature of the faculty reward system in the program area can be investigated. Are faculty members seemingly rewarded for conformity or for divergence? Are faculty encouraged to relate to their professional reference group or are they expected to maintain a perspective largely within the university? Are interdisciplinary contacts encouraged? And so on.

10. The program should be supported by adequate facilities, equipment, and other resources. A program that lacks adequate support mechanisms cannot be effective regardless of how noble it may be in concept. Overcrowded spaces, vintage laboratory equipment, outdated instructional materials, low salaries, and the like, can only detract from efficacy. While these are primarily administrative considerations they are nevertheless crucial. It may also be noted that the lack of adequate support in a situation where support is on the average reasonably good is a fine indicator of lack of administrative confidence in an area.

11. The program should make explicit provision for self-renewal. Simply, the program must have a means for assessing its status at any given time and for comparing that status to some ideal. The ideal itself must be subject to revision, and indeed, a department that had not revised its ideal given the events of, say the past decade, would be in a dubious posture. However good a program may be, it is always possible to improve it, and at times it may be wise to abandon it. The department that does not make explicit provision for reassessment is likely to forget the matter entirely, or to overlook it at just those times when rigorous assessment is most needed.

The test of the criterion is the existence of a plan for such self-evaluation and some historical evidence to show changes that have been made over time in response to what the self-studies showed.

A Final Word

It is obvious that the criteria named above are very broad and are intended to apply to an entire program over time, not to pieces of it or to a one-time assessment. The academic health of a doctoral program can no more be determined by looking only at its courses, or its admission requirements, or its examination system, or to the placement of its graduates, than can the health of a man be assessed by looking only at his liver or his vision. Nor is it the case that a diseased organ noted at a given time will later be diseased as well, or that the disease of any part necessarily means the demise of the whole. Any review procedure that attempts to apply the above criteria ought not to begin on the assumption that any program that does not conform should be disapproved; rather, one should expect all programs to be partly deficient in many areas and perhaps seriously deficient in some. The object is not to bring recalcitrants into line but to help all programs do better. What is required is a therapeutic rather than a judgmental point of view; evaluators should be perveived at least as much as physicians as they are as judges.

APPENDIX B

INSTRUMENTATION ASSOCIATED WITH THE CRITERIA

Criteria Question 1: Does the program display an integrity or wholeness?

A. Evidence Required:

1. Professional employment for which student candidates are eligible.
2. Descriptions of how various courses or other program experiences can be combined in a doctoral program to equip a person for a particular type of position.
3. A description of the common conceptual strands in the program courses and activities.
4. A description of the core knowledge and skills of the program.

B. Suggested Procedures for Data Collection:

1. The program area should supply a list of names of all doctoral graduates for the past five years. Accompanying each name should be a description of the graduate's present position. This description should indicate the major professional duties and activities, i.e., research or evaluation studies, program development activities, and other service activities. A format for collecting this data follows:

1. Name of Graduate	2. Present Position	3. Where Employed
John Smith	Assistant Professor	Soho College

4. Professional Duties and Activities	5. Activities in Graduate Study Provided by the Program Area Which Lead to Present Position
Teaching two undergraduate ed. psych courses; continuing work begun as doctoral study (the relation of critical reading to divergent thinking); consultant to nearby headstart program; working on a faculty-student committee to revise fifth year ed. psych. offering.	Course work - especially experimental research design; instructor of P280 courses; work on the effectiveness of headstart program.

2. A postion paper should be developed by the program area which describes the parameters of that area. This paper should include a listing of the conceptual strands on which the program area is based and the assumptions underlying the inclusion of these conceptual strands.

3. The program area should provide a list of competencies or combinations of possible competencies (knowledge and/or skills) which are common to all doctoral graduates in that area. (This information is also being gathered for criteria question 2, B, 3)

C. Performance Criteria

1. For most graduates there should be some relations between their graduate program activities and their present position.

2. The position paper should clearly describe the program area and differentiate it from other areas.

3. The list of the common competencies should be available or should be developed.

Criteria Question 2: Is the program competency-based; and does the program provide multiple experience that permit achievement of every competency that is required?

A. Evidence Required:

1. A list of competencies which comprise the entire field.

   a. The list should be hierarchically ordered.

   b. The list should be stated in behavioral terms.

2. A list of the kinds of experiences provided in the program to make competency-achievement possible.

3. A list of means of evaluation in the program of each competency.

4. A rationale for competencies for which no experiences are provided in the program because the competencies are not considered important enough to warrant them.

B. Suggested Procedures for Data Collection:

1. Two alternative methods may be used to provide this competency list:

   a. If the professional organization of the field already has a list of competencies and it is accepted nationally as a standard, this can be used.

   b. If not, the procedure should be to devise a list of all known competencies in the field (working from literature and other such sources), and then submit this list (behaviorally stated) for rating in order of importance to a panel of the most visible leaders of the field (minimum: 40). This questionnaire should also provide a place for these leaders to add any other competencies that they feel are equally desirable.

2. After the questionnaire have been returned, and ratings have been checked, a new competency list should be reassembled on the basis of the responses. The hierarchical order will thus have been established. (It is assumed that all competencies will have been written in behavioral terms before being included on the questionnaire and that any additional suggestions forthcoming will be restated in behavioral terms if not already in that form.)

3. The new competency list would indicate the various kinds of experiences provided in the program for its achievement. This list would include the name and/or number of the course providing the experience and a brief statement of how it is assessed. A suggested format follows:

Competency	Didactic Types	Kinds of Experience Provided		
		Vicarious	Labor	Direct
Item	Description; course name and/or number; where and how assessed.			

C. Performance Criteria:

1. The program should evidence, through the results of the competency list, that it is competency based and provides multiple experiences for competency achievement.

Criteria Question 3: Is the program capable of a great deal of individualization?

A. Evidence Required:

1. A student may devise multiple routes through the program by selecting form different experiences to meet requirements.
2. Students are pursuing different program assemblages.
3. Cases of graduates who differ notable in the things they have been prepared to do and are able to do.
4. A systematic evaluation procedure which determines the status and emergent needs of students at any given time.

B. Suggested Procedures for Data Collection:

1. Dossiers of all graduates for the past five years would be used to ascertain if:
   a. Students devised multiple routes through the program;
   b. Students pursued different program assemblies (different minors, outside work, etc.)
2. The competency list (Criteria Question 2, B, 3) should be sent to all graduates for the past five years. The graduates should check those competencies (a) he was prepared to do by the program, (b) he feels able to do, (c) in order of importance, and (d) he utilizes in his present position.
3. The program should provide an analysis of its student evaluation procedures as they are currently operating. The aim should be to establish that they are systematic in nature and function efficiently for all students in the program. Details of the different kinds of activities should be included.

C. Performance Criteria:

1. Students have devised and are devising multiple routes through the program.
2. Graduates are utilizing the competencies they were prepared for by the program.
3. Evaluation programs are being used.

Criteria Question 4: Does the program rest on sound student recruitment and selection criteria?

A. Evidence Required:

1. A description of the selection criteria used by the program area, which should include assessment of general aptitude, specific aptitude, achievement, etc.; and the rational for the use of these assessment techniques.
2. Descriptions of how the recruitment program reflects the demands of the market place.

B. Suggested Procedures for Data Collection

1. A rational argument should be presented for the use of the selection criteria.
2. Test scores, achievement records, quality and quantity of previous training, and experience should be listed for all students admitted during the previous five years.
3. Graduate performance of students in the program should be provided.
4. A description of the first position the student obtained after receiving the doctorate should be provided.
5. Test scores, etc. for the students who were admitted but who did not matriculate should be provided.
6. Documentation of the demands of the market place (job vacancies, national conventions, etc.) should be provided.
7. A description of national recruitment procedures should be provided.

C. Performance Criteria:

1. A very high percent (90%) of the students who were admitted to the program area actually matriculated, completed a degree and

were placed in a respectable position. The new position reflects a marked change in responsibility for most doctoral recipients.

Criteria Question 5: Does the program provide for theory-practice integration?

A. Evidence Required:

1. A description of the development activities of faculty and students.
2. A description of practicum activities of the program area.

B. Suggested Procedure for Data Collection:

1. Documentation and descriptions should be provided of development activities engaged in by faculty, students, and especially faculty-student teams; this description should indicate how the development activity is related to some theoretical base.
2. Documentation of practicum activities should also include a description of how they are related to some theoretical base.

C. Performance Criteria:

1. The program area should be involved in development activities which are built on theoretical bases.

Criteria Question 6: Does the program possess sophistication and rigor?

A. Evidence Required:

1. A description of program area experiences which indicates the increased sophistication demanded at advanced levels.

B. Suggested Procedures for Data Collection:

1. The program area should provide a hierarchical listing of area experience in the following format:

Area Activities: courses, practicums, independent study, etc. (Activities should be listed from basic to advanced levels.)	Student Competencies Developed in Activity	Append bibliographies which describe extent of literature for this activity.

C. Performance Criteria:

1. The listing of activities, described by competencies and evidence of extent of literature, should indicate an increased level of sophistication at advanced levels.

Criteria Question 7: Is the program inquiry oriented?

A. Evidence Required:

1. Descriptions of the inquiry competencies required of doctoral students in the program area.
2. Descriptions of the planned learning experiences for doctoral students to develop and apply their inquiry skills.
3. Descriptions of inquiry oriented activities of the faculty and students.

B. Suggested Procedures for Data Collection:

1. Competencies or combinations of competencies in the inquiry area which are required if all doctoral students should be listed.
2. Descriptions should be provided of all inquiry oriented activities which are provided in the program area.

3. The program area should provide a listing of the inquiry oriented activities of faculty and students for the past three years, which would include publications, evaluation service activities, artistic exhibitions, etc. The program area should also collect, by means of a questionnaire, a list of the inquiry oriented activities of the doctoral program graduates of the past five years.

C. Performance Criteria:

1. The program area should provide experience for doctoral students to apply their inquiry skills.
2. The competency list should provide evidence that the program area is inquiry oriented.

Criteria Question 8: Does the program rest upon a quality faculty?

A. Evidence Required:

1. Sections of the faculty annual report/questionnaire which relate to the teaching effectiveness, research productivity, and services rendered.
2. Information on the faculty who have resigned during the previous five years, the information providing a basis for assessment of the resigner.
3. Information on the faculty who were offered a position but declined during the past five years, the information providing a basis for assessment of the person.

B. Suggested Procedure for Data Collection:

1. The information should be outlined to reflect faculty productivity, teaching and service.
2. The quality of the faculty should be documented so that an assessment regarding its quality can be established, i.e., degrees held, rate of promotion and other rewards and recognitions.

3. A questionnaire should be sent to a representative sample of departmental chairmen throughout the United States. The following is a suggested format for the questionnaire:

   A. Which of the terms below best describes your judgment of the quality of the graduate faculty in your department at Indiana University? Consider only the scholarly competency and achievements of the present faculty.

      1. Distinguished.
      2. Strong.
      3. Good.
      4. Adequate.
      5. Marginal.
      6. Not sufficient to provide acceptable doctoral training.
      7. Insufficient information.

   B. How would you rate the Indiana University School of Education's Department of _____ if you were selecting a graduate school to work for a doctorate in your field today? Consider the accessibility of faculty and their scholarly competence, curriculum, educational and research facilities, the quality of graduate students and other factors which contribute to the effectiveness of the doctoral program.

      1. Extremely attractive.
      2. Attractive.
      3. Acceptable.
      4. Not attractive.
      5. Insufficient information.

C. Performance Criteria:

1. The faculty should be easily recognized across departments within the university and within their areas of specialization on a national basis.
2. The attraction and retention rate of the faculty should reflect an improvement in their quality.

Criteria Question 9: Is the program supported by adequate facilities, equipment, and other resources?

A. Evidence Required:

1. The budget for the department or program area for the previous five years should be provided. This would include faculty salaries, staff salaries, supplies and expenses and new equipment. Increases in the allocations for each of these sub-categories should be shown.

B. Suggested Procedures for Data Collection:

1. The allocated budgets should be presented so that comparisons can be made across five year period. Each of the major categories of the budget should be itemized.
2. A description of office spaces and facilities should be given.
3. A description of facilities outside and inside the school and departments should be provided.

C. Performance Criteria:

1. Faculty should have competitive salaries.
2. Secretary support should be competitive.
3. GA support should be competitive.

Criteria Question 10: Does the program make explicit provision for self-renewal?

A. Evidence Required:

1. A design for self-evaluation.
2. The results of the most recent self-study, including recommended changes.

B. Suggested Procedures for Data Collection:

1. An outline of the recommended changes resulting from the most recent self-study should be given.
2. Documentation of the changes which have been made or a plan for making the recommended changes should be provided.

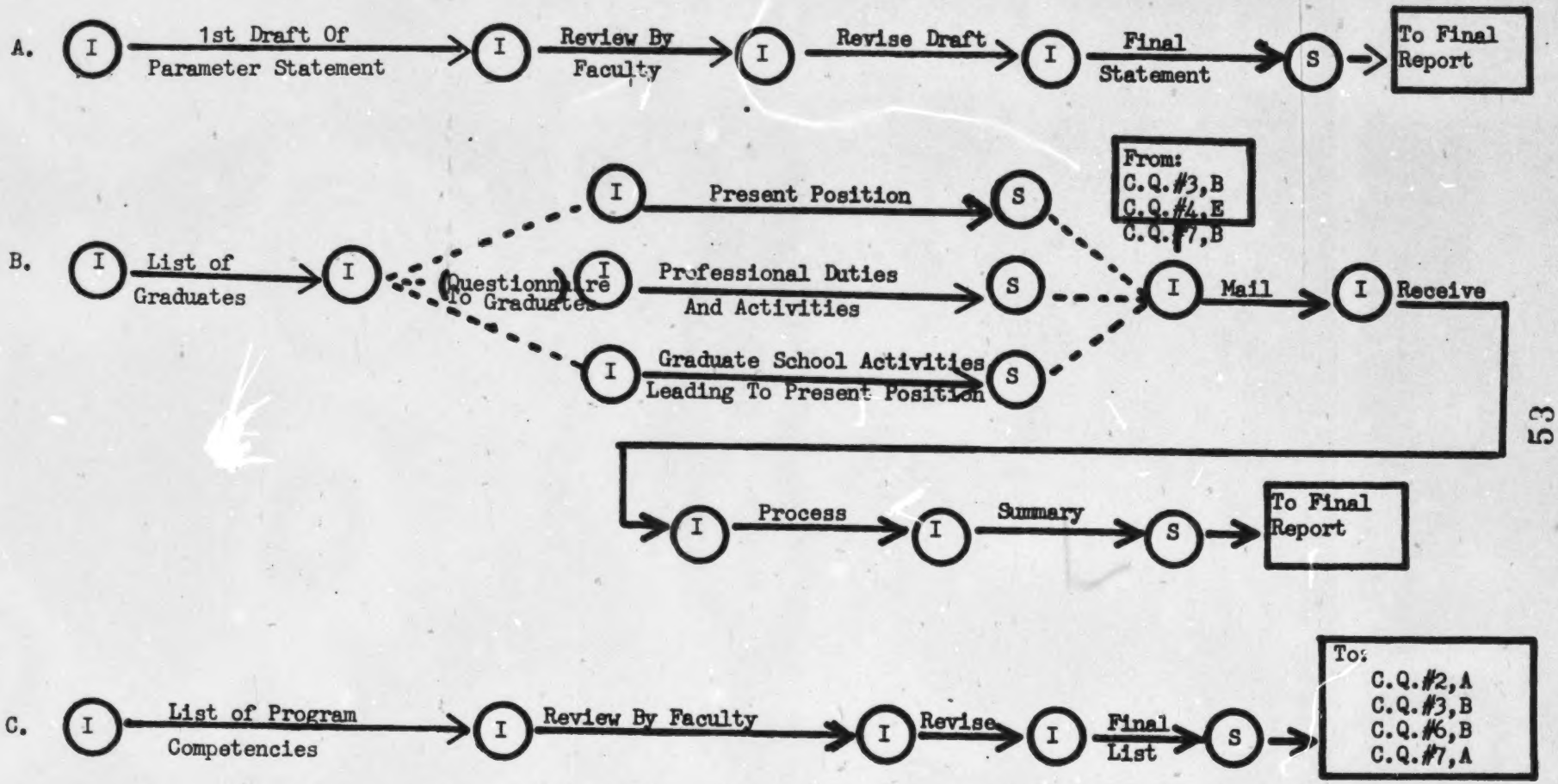
C. Performance Criteria:

1. At least one-self-study resulted in significant changes during the previous five years.

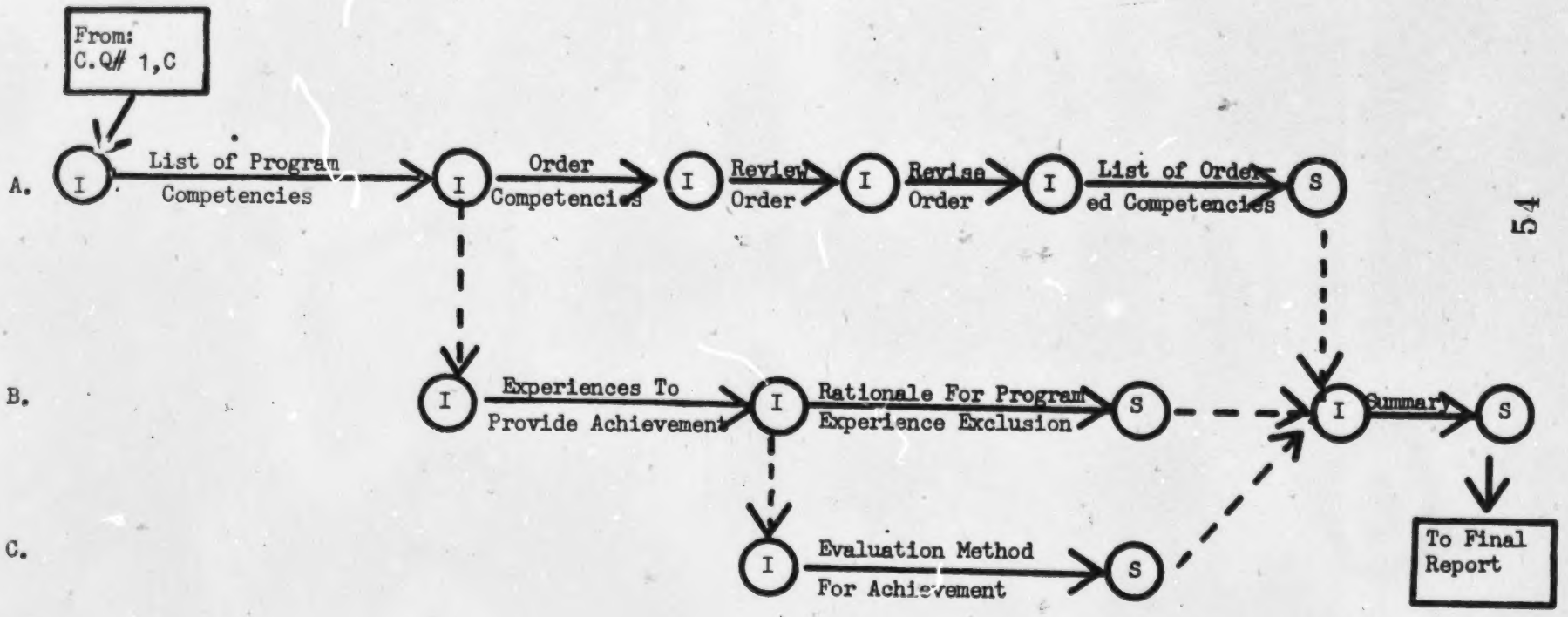
APPENDIX C

PERT CHARTS DESIGNED TO GUIDE THE DIST IMPLEMENTATION OF THE EVALUATION PROCESS

CRITERIA QUESTION #1	THE PROGRAM SHOULD DISPLAY AN INTEGRITY OR WHOLENESS



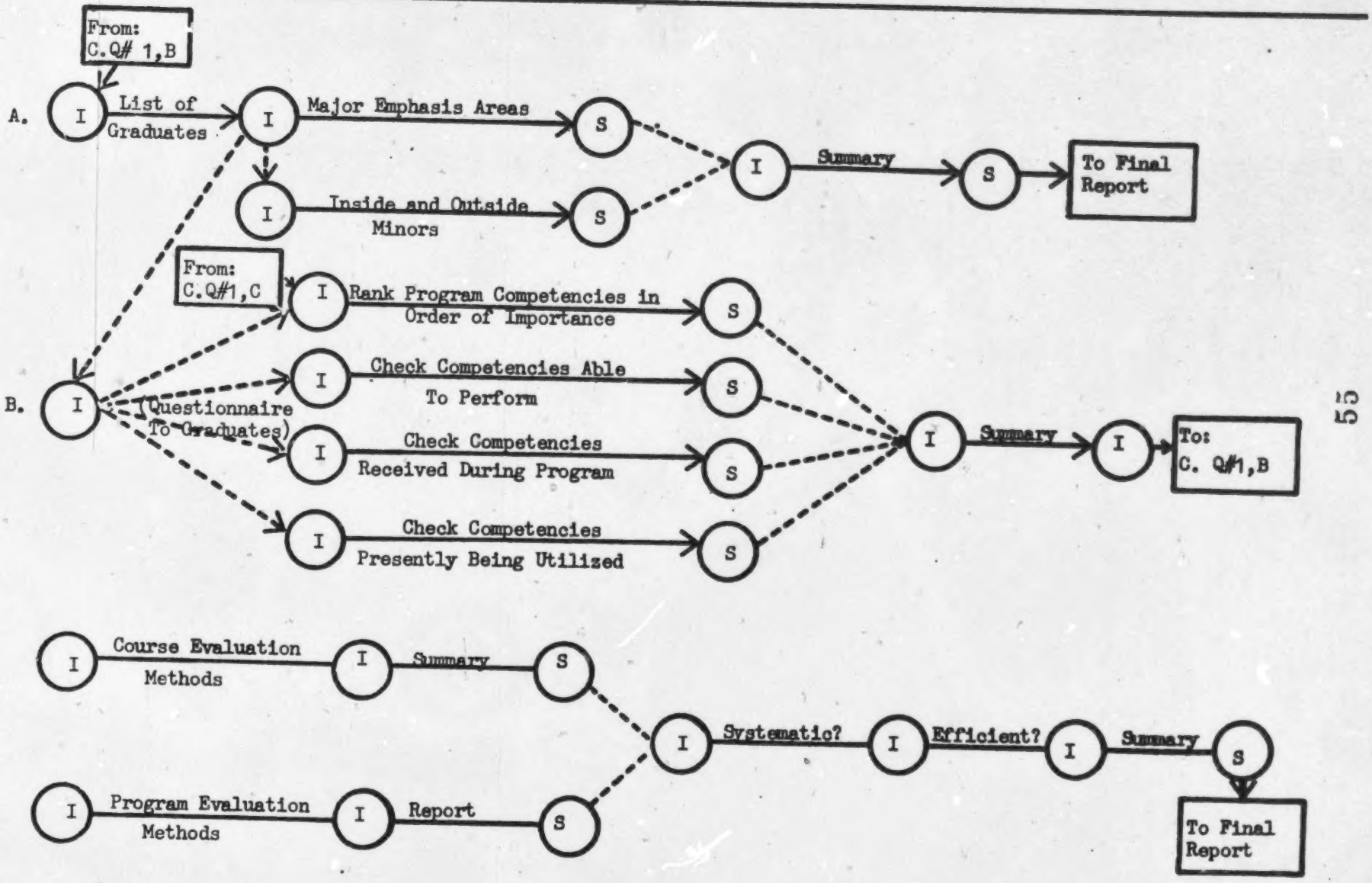
CRITERIA QUESTION #2	THE PROGRAM SHOULD BE COMPETENCY-BASED; AND THE PROGRAM SHOULD
	PROVIDE MULTIPLE EXPERIENCES THAT PERMIT ACHIEVEMENT OF EVERY
	COMPETENCY THAT IS REQUIRED



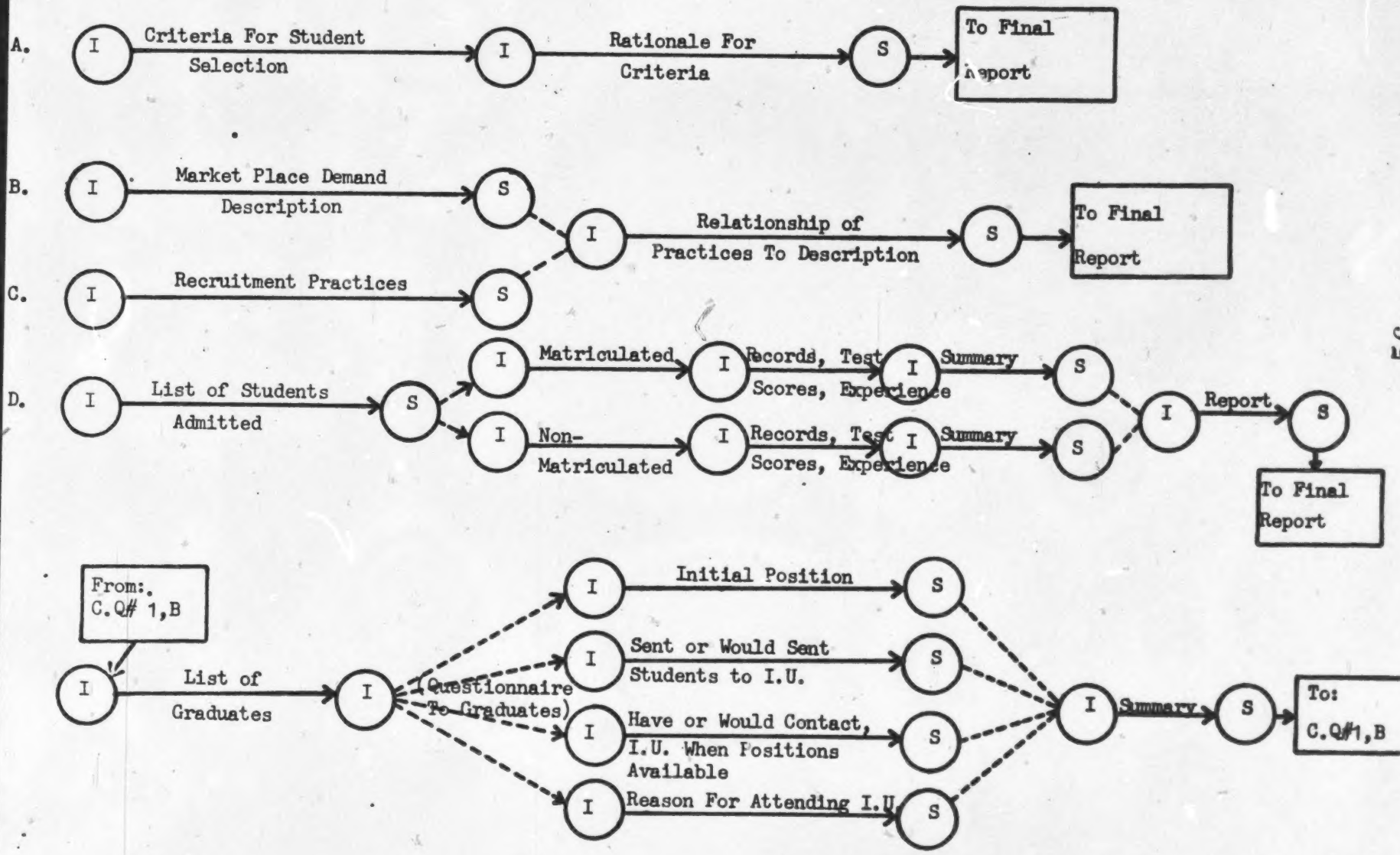
CRITERIA QUESTION # 3

THE PROGRAM SHOULD BE CAPABLE OF A GREAT DEAL OF

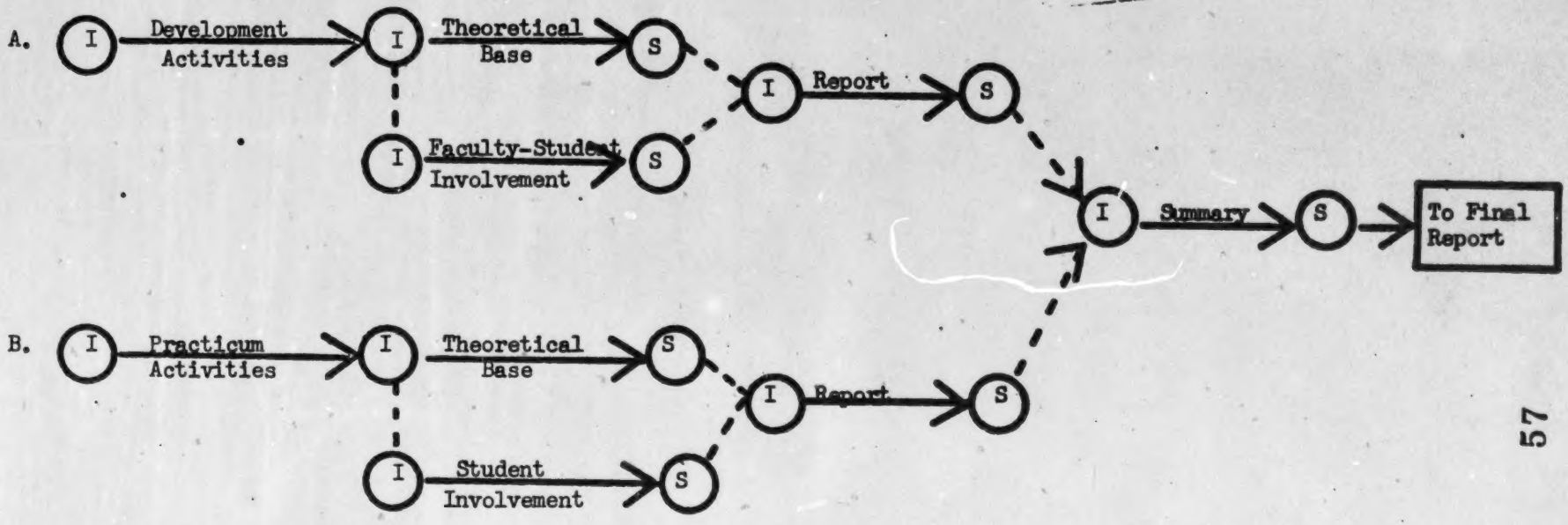
INDIVIDUALIZATION



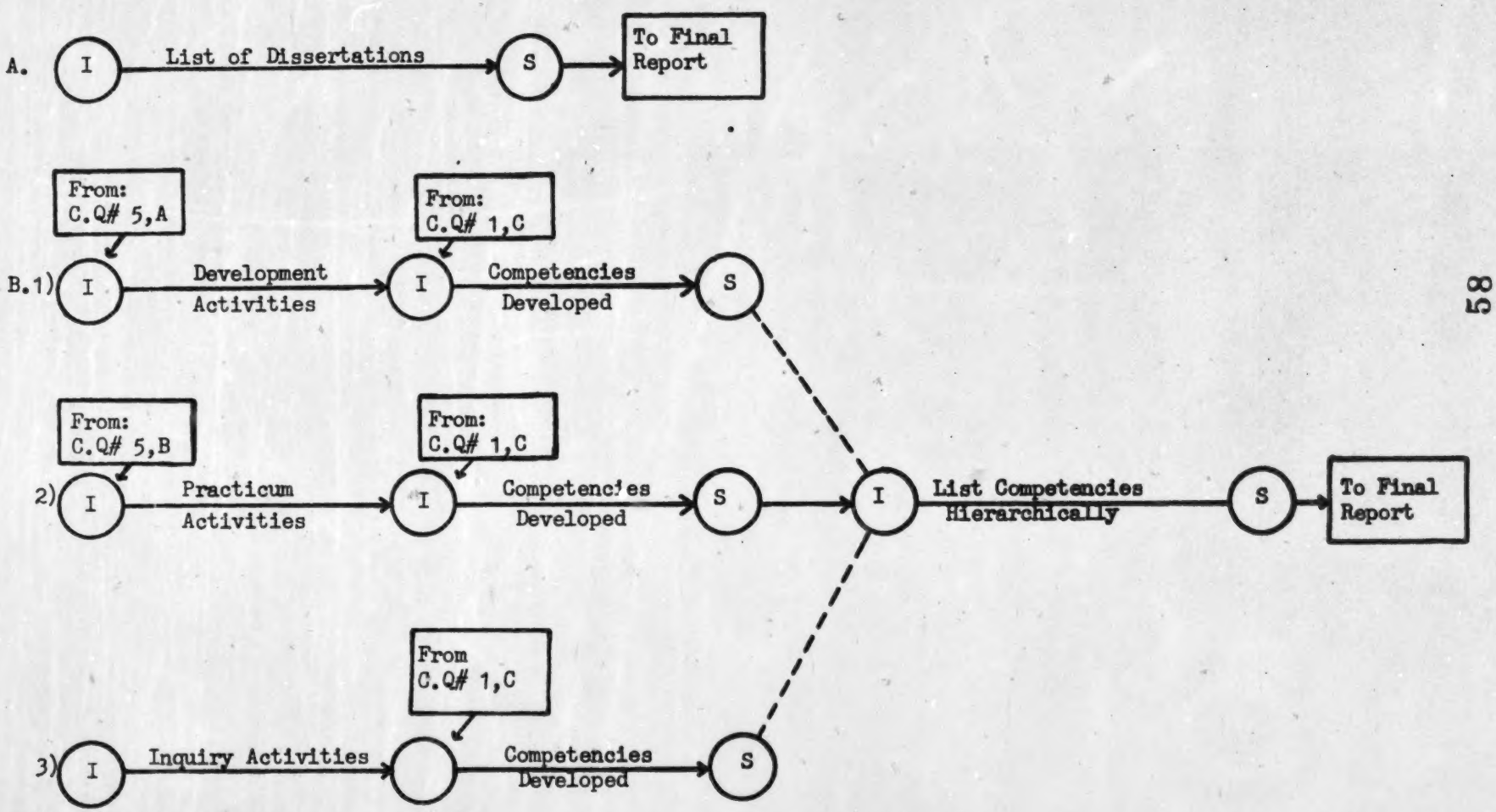
CRITERIA QUESTION #4	THE PROGRAM SHOULD REST ON SOUND STUDENT RECRUITMENT AND SELECTION CRITERIA



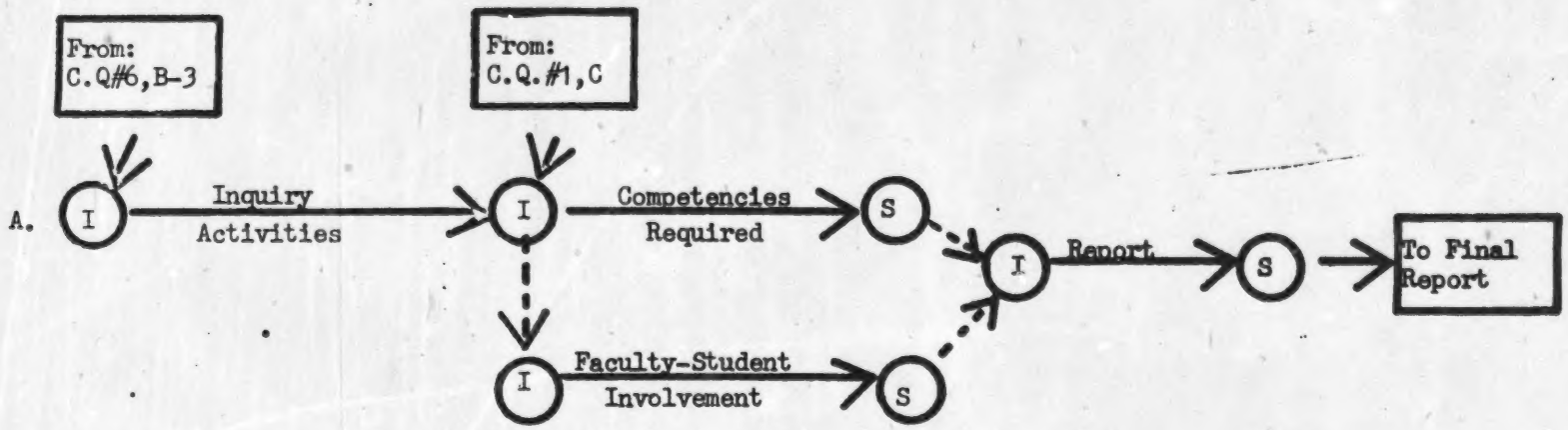
CRITERIA QUESTION #5	THE PROGRAM SHOULD PROVIDE FOR THEORY-PRACTICE INTEGRATION

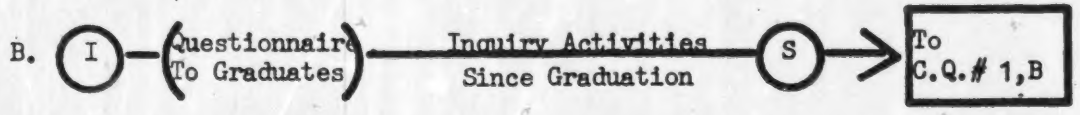


CRITERIA QUESTION #6	THE PROGRAM SHOULD POSSESS SOPHISTICATION AND RIGOR

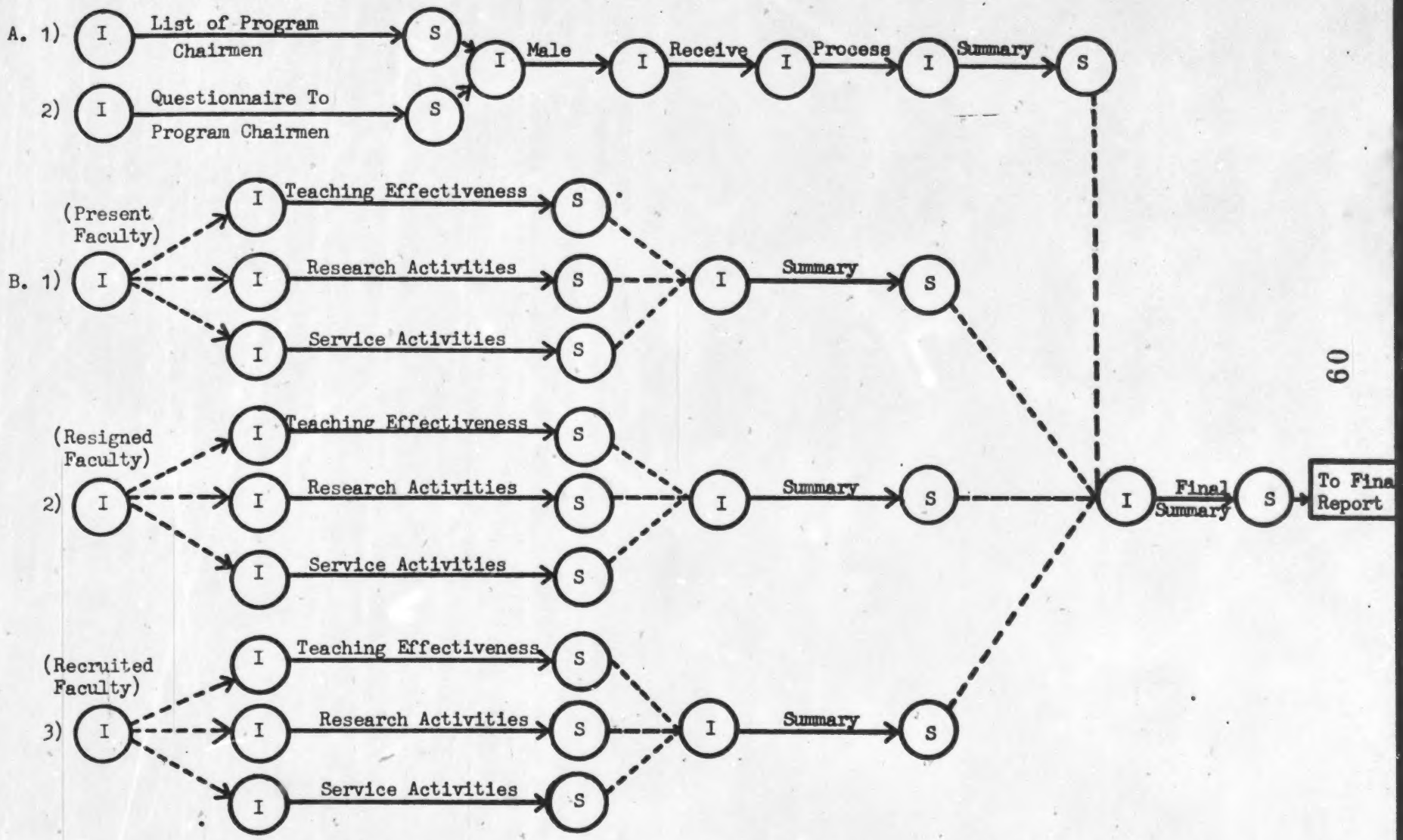


CRITERIA QUESTION #7	THE PROGRAM SHOULD BE INQUIRY ORIENTATED

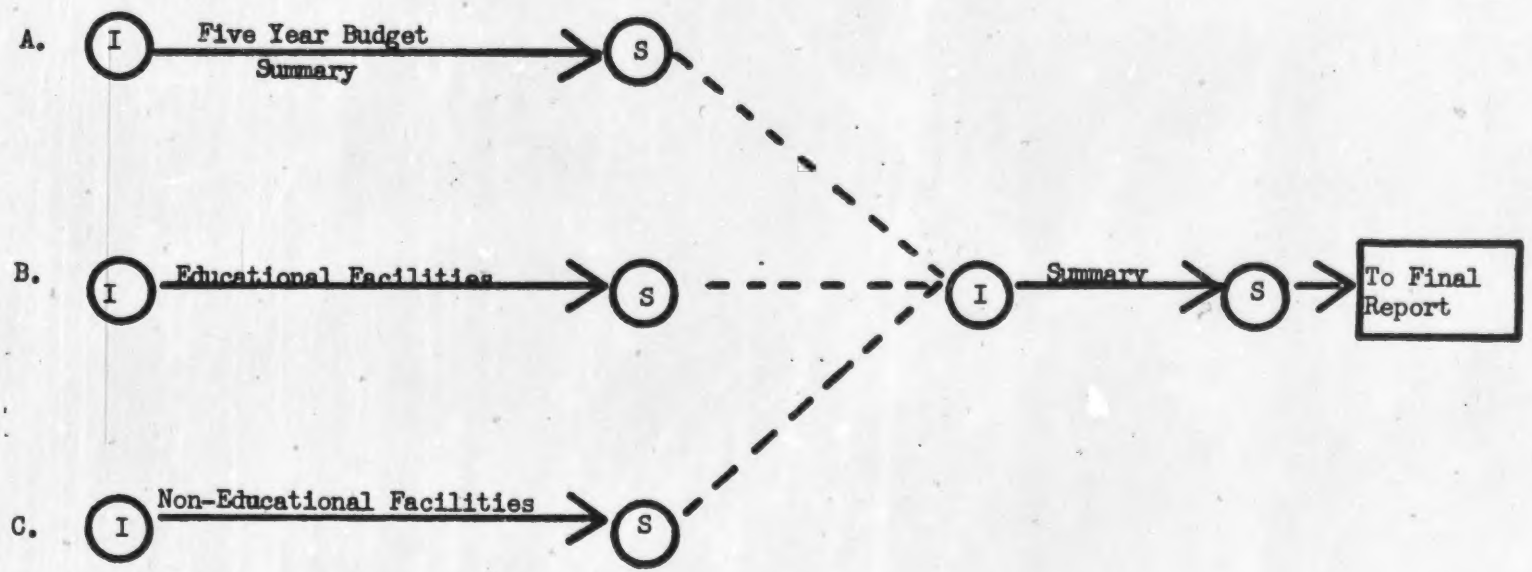




CRITERIA QUESTION #8 | DOES THE PROGRAM REST UPON A QUALITY FACULTY?



CRITERIA QUESTION #9	IS THE PROGRAM SUPPORTED BY ADEQUATE FACILITIES, EQUIPMENT, AND OTHER RESOURCES

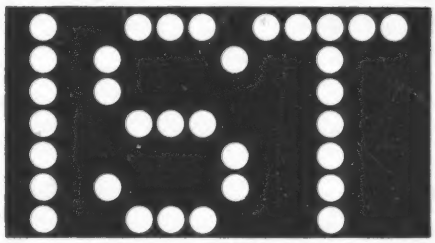


APPENDIX D

CURRENT IST COURSES

Indiana University
School of Education
Bloomington, Indiana

1974-75 guidelines for undergraduate and graduate professional study programs in instructional systems technology.



Division of Instructional Systems Technology and Audio-Visual Center

The various undergraduate and graduate professional-study programs in Instructional Systems Technology (IST) currently offered at Indiana University are described in this guide.

Each program is specifically designed to prepare persons qualified (1) to meet the increasing demands for IST specialists and/or (2) to contribute to systematic research and theory development in the field.

Students interested in the program should apply to Indiana University — the Undergraduate and Graduate Divisions of the School of Education (B.S., M.S., Ed.S., and Ed.D.), or the Graduate School (M.A. and Ph.D.). The bulletins of both schools are available upon request.

Students will be required to meet admission requirements. Three exceptions in requirements are made in the School of Education, Graduate Division, for students not planning careers in public schools: (1) the admission requirement of a teacher's certificate or a minimum of ten hours in education may be waived, (2) the master's degree requirement of a course in each of three specified fields in education may be reduced to one course in one of the three specified fields with the privilege of choosing, for the other two courses, comparable ones from other departments and schools in the University, and (3) up to six hours in specialized media courses may be counted toward the hours of work required outside education.

Because of the nature of knowledge in the instructional systems technology field, postmaster's courses must draw heavily on the theoretical and research literature of the appropriate supporting disciplines. For example, a student interested in a specialist or doctoral-level program in instructional development must have an adequate background in the behavioral sciences. In the admission of students, consideration will be given not only to GRE aptitude scores, grade-point averages, and references, but also to the amount and quality of course work in supporting disciplines on the undergraduate and graduate levels.

A number of interesting possibilities for professional careers using instructional systems technology in supportive roles are available. Undergraduate students interested in a minor in Instructional Systems Technology should consult with the Director of the Division or any faculty member in the Division.

Graduate students should first consult with the Chairman of the Division and then with faculty members in their curriculum emphasis area. (See page 2)

Doctoral students electing to take a minor in IST are required to take at least 15 hours and very possibly more if the IST minor will be instrumental in getting their positions or if the competencies developed in the IST minor represent a substantial segment of their work. Normally the doctoral minor in IST should include at least two courses at the 600 level.

Questions for the Qualifying Examination will be the responsibility of the IST committee member on the student's doctoral committee. He probably will prepare at least one of the questions himself and contact other faculty members for additional questions. He will probably ask the person who prepared each question to evaluate the answer. Questions and responses are to be forwarded to the Director's Office.

Students in the IST program can complement their course experiences in the Audio-Visual Center which is functionally and operationally coordinated with the Division of Instructional Systems Technology. Among the purposes of the Audio-Visual Center are (1) to provide opportunities for advanced study, experience, and research in the practical and theoretical aspects of production, selection, circulation, and utilization of the major types of audio-visual materials and in the organization and administration of an instructional materials program and (2) to contribute to instructional and research activities of all schools and departments at Indiana University by providing faculty members and students with professional assistance in the selection, procurement, and use of audio-visual materials and by offering assistance and facilities for the production of all types of materials. Some students prefer in-depth experiences in one operational area of the Center, e.g. production, selection, diffusion, or administration, while others prefer a wider range of on-the-job experiences and during their professional-study career will shift from one area of work to another. Obviously there are advantages to both of these strategies.

Bachelor's Degree Programs

A minor in the field of Instructional Systems Technology is available to undergraduate students. Students in the School of Education may wish to combine such a minor with a major in a selected teaching area, Radio and Television, or School Library Services. In these cases, the Indiana Division of Teacher Education and Certification requires at least 24 semester hours. For additional information, see the Bulletin of the School of Education, Undergraduate Program.

Courses should be selected from the following in terms of candidate's career plans or teaching majors:

Education R423	Utilization of Instructional Materials
Education R533	Organization and Curricular Integration of Audio-Visual Media
Education R543	Preparation of Inexpensive Instructional Materials
Education R544	Production Techniques
Education R546	Survey of Audio-Visual Communications
Education R566	Audio-Visual Communications in Formal Education

A minimum of six semester hours in anthropology, psychology, and/or sociology. One course to be selected from instructional systems technology, journalism, library science, radio, or computer technology.

Master's Degree Programs

The master's degree program is a one-year graduate program requiring completion of a minimum of 36 semester hours in graduate courses (without a thesis or 30 semester hours with a thesis). Students who plan to continue for an advanced graduate degree should consult with appropriate Instructional Systems Technology advisor on master's-level courses required for admission to specialist or doctoral degree programs.

Courses should be selected in terms of a candidate's educational career plans or curriculum emphasis area as suggested by the following representative career areas:

1. **Teaching Area/IST Combination**
2. **Coordinator of Audio-Visual Materials**
3. **Instructional Materials Center Coordinator**
4. **Production of Instructional Materials**
5. **Instructional Television Specialist**

Specialist Degree Programs

The specialist degree is a two-year graduate program of 65 semester hours with the second-year or 600-level courses carrying prerequisites in Instructional Systems Technology, as well as in supporting disciplines, that must be taken at the undergraduate and/or master's levels. Specialist degree majors in instructional design and development, product evaluation and curricular integration, and systems design and management of learning resources programs usually should include a data processing course.

Special forms are available in the Director's Office for listing specific courses. All courses should be selected in consultation with the student's advisor.

1. Instructional Systems Technology Courses

24 hours minimum with selection in accordance with a major emphasis in
(a) Instructional Television
(b) Instructional Design and Development

(c) Product Evaluation and Curricular Integration
(d) Systems Design and Management of Learning Resources Programs
(e) Message Design and Production
(f) Diffusion and Adoption of Innovations in Instructional Systems Technology

Since the Ed.S. is a sixth year program, a generous number of 600 level courses should be included among the total of 24 semester hours.

2. Foundation Courses

At least one course in four of the six areas:
(a) Research
(b) History/Philosophy
(c) Psychology
(d) Curriculum
(e) Educational Measurement
(f) Statistics

3. Courses in Fields Closely Related to Instructional Systems Technology

Nine semester hours either inside or outside the School of Education closely related to IST. The specific courses selected would depend on the primary emphasis area the student has selected within IST.

4. Courses in Appropriate Fields Outside of School of Education

Nine semester hours in appropriate fields outside of School of Education depending on the primary emphasis area within the IST program.

5. Electives Approved by the Student's Committee

Electives should bring the total to a minimum of 65 semester hours of graduate credit.

Doctoral Degree Programs

The doctoral program requires the completion of a minimum of 90 semester hours of graduate credit. It should be planned on a three-year basis in order to select, on the master's level, those courses in IST and supporting disciplines needed as prerequisites for the second year of graduate work and also to plan for second year, 600-level courses needed as prerequisites for the third year, 700-level courses.

Doctoral degree students generally select from doctoral curriculum emphasis areas (Numbers 2-6, pages 2-3) one curriculum emphasis area in which to concentrate and one or more supporting closely related emphasis areas, one of which may be selected from the four areas described on page 3. A student may, however, with the advice of his counselor or doctoral committee, develop his program of courses from two or more of the curriculum emphasis areas rather than from one. Such a decision should reflect his goals, past experiences, and job opportunities.Such individualizing or tailoring of a doctoral program does not contradict the curriculum emphasis area concept since the emphases represent clusters of courses related to developing competencies in some of the more frequently recurring professional placement areas and definitely are not required tracks. Students for the doctoral degree also select two supporting minors, one of which must be outside education and represent a supporting discipline for the desired specialization in educational media. A minor in General Communications can be used as a minor toward the Ed.D. degree but not toward the Ph.D. degree.

In order to receive adequate counseling, doctoral students should obtain an advisor upon arrival on campus. After notification of admission to the doctoral program, students should obtain a doctoral committee as soon as possible. Entering students planning to follow a doctoral program should at their earliest opportunity:

(1) Complete an application for admission to advanced graduate study — be sure that the application is complete in all details.

(2) Request from the Director of the Division of Instructional Systems Technology a pro tem advisor pending action on application.

(3) Upon notification from the Graduate Division that application has been approved, obtain a Doctoral Committee Membership form for signature of individual doctoral committee members. The chairman of the committee should be consulted in planning the composition of the committee.

(4) Plan program tentatively in consultation with doctoral committee chairman.

(5) Plan a doctoral committee meeting in consultation with doctoral committee chairman for the purpose of program approval.

Curriculum Emphasis Areas

As indicated in the foregoing brief descriptions of the specialist and doctoral degrees, there are six curriculum emphasis areas from which the candidate, in collaboration with his committee, selects one or a combination in an effort to develop the best possible specialist or doctoral program in terms of his individual experiences, professional goals, and the demands of future job opportunities.

The descriptions of these areas follow. Numbers 1-6 may be selected by specialist degree candidates. Numbers 2-6 may be selected by doctoral degree candidates.

The candidate and his committee will be helped in sequencing courses by consulting a tentative long-range timetable for offering IST courses which is available through the Director's Office.

1. Instructional Television (G. Johnson)

Specialist Degree. The program for the instructional television specialist is designed to develop competencies for (1) producing instructional television programs or (2) supervising the production of instructional television programs.

The curriculum in instructional television provides the student with experiences in preparing programs, both closed-circuit and broadcast, for schools, churches, government, the military, and industrial organizations. Graduates will need a variety of production competencies not only in television but also in such related media as graphics, motion pictures, and still photography. Job functions will include TV direction, writing for TV, and message design.

The need for professionals with competencies in ITV production is increasing. School systems find a growing need for programs closely related to local and regional instructional programs. Professional schools in medicine, dentistry, and education are using the video tape recorder to produce ITV programs which can repeat lessons for multiple sections of classes. Often these lessons include processes and subject matters which would be difficult, time-consuming, and expensive to repeat in live broadcasts. Government and industry are also making use of the TV medium for the same reasons.

Graduate assistantships for those selecting the ITV emphasis may be within the TV medium or one of the related production areas. Involvement in client relationships and the many problems in the diffusion and adoption of the ITV message would be valuable experiences. A number of different assistantship possibilities would relate to the competencies needed in ITV production.

2. Instructional Design and Development (Schwen, Davies)

Specialist or Doctoral Degree. Instructional development is essentially a systematic decision-making process in which the developer takes into account all the classes of variables which might affect the quality of the instruction under development. The developer synthesizes from among these variables those which offer the greatest promise for a given learner and learning task. He then designs sub-systems for evaluation, logistics and management for the instruction. He subjects the instructional segment to developmental and field testing, revising it as required.

The instructional development process has wide applicability in colleges, schools, industrial and military training, and other instructional settings.

The degree programs consist of coursework, practica, seminars, an internship, and — in the case of the doctorate — formal research. Several graduate assistantships, which provide opportunity to assist faculty in the design of instruction, are available.

3. Product Evaluation and Curricular Integration (Guss, Cuttill, Heinich, Johnson, Wetmore)

Specialist or Doctoral Degree. Educational product evaluation and curricular integration concerns the prediction of learning responses to educational media. It is distinguished from other curricular emphasis areas by its special focus on the documentation of the educational utility of media and the analysis of the intents, outcomes of use, and value judgments concerned with educational products (hardware, software, and methods) in order to provide a valid basis for educational decision-making and for curriculum planning and evaluation. Curriculum in this context is construed as referring to the sequenced learning and informative experiences of individuals and/or groups in formal and informal situations.

Training and professional careers in this area can be divided into two specializations: (1) the educational product evaluator (applied scientist) and (2) the researcher in educational product evaluation (basic behavioral scientist). Interested students may be able to work out programs which result in proficiency in both areas.

4. Systems Design and Management of Learning Resources Programs (Moldstad, Richardson)

Specialist or Doctoral Degree. Increasing reliance upon instructional systems technology in instructional development coupled with greater public demand for cost-benefit analysis of its effectiveness has highlighted the need for skilled management of integrated learning resources programs. The systems design and management curriculum is designed to prepare personnel (1) to manage or teach others to manage basic functions of an integrated learning resources program (staff allocation and utilization, selection and distribution of media resources, local production and adoption of new media approaches, facilities design for use of instructional technology, evaluation, etc.) and (2) to acquire competencies related to staff roles of the instructional systems administrator as an essential specialist on course development teams concerned with instructional design, development, diffusion, and adoption.

Within the curriculum, competencies would be provided for careers varying from (1) managers concentrating on applying general principles of management-planning, organizing, motivating, and controlling to on-going programs in public schools and colleges and universities, industrial training, government, religious organizations, etc., to (2) systems analysis and research-oriented specialists skilled in the development and institutionalization of education systems.

5. Message Design and Production (Fleming, Carter, Flaten, Frye, Levie, Niekamp, Pett, Stevens, Vuke)

Specialist or Doctoral Degree. With a widespread emphasis today upon the technology of instruction and a systematic approach to the development of instructional materials, there is an increasing need for message designers and production specialists. Graduates of both the specialist and doctoral degree programs need to have competencies in applying behavioral science principles to the design of instructional messages and in producing various types of instructional materials. The doctoral graduate, additionally, needs a broad knowledge of research methodology and its application to the study of message design variables.

Both programs offer students opportunities to develop competencies in script writing and in the production of instructional materials using graphics, still photography, motion pictures, programed instruction, and radio and television. Students for the specialist degree must take more than one course in two or more of the above.

The doctoral degree program requires, additionally, that students be prepared to conduct research dealing with theoretical and professional issues of concern to message design and production. The doctoral student may choose to concentrate on methodology in experimental, evaluative, analytical, or descriptive research.

6. Diffusion and Adoption of Innovations in Instructional Systems Technology (Jwaideh, Bhola, Knowlton)

Specialist or Doctoral Degree. Researchers and others, especially in recent years, have created much new knowledge of potential value to education. A great deal of this knowledge has been put into consumable form. But a persistent problem remains: how to get these innovative developments put into practice.

Needed to help solve this problem are educators who will take a major responsibility for facilitating the adoption of innovative practices — practices that include all sorts of tested instructional strategies, but especially those that incorporate the use of media, "systems packages," or other technological devices.

The instructional program for the diffusion-adoption (D/A) student has three facets: (1) a series of courses designed to develop an understanding of the diffusion-adoption process, (2) preparation in connection with the technological and other innovations with which he will be dealing, and (3) a practicum-seminar-internship complex of activities.

Research and Theory Concentration

A research and theory concentration may be chosen by doctoral students in any of the five curriculum emphasis areas. It can be integrated with any of these programs. It is designed to provide competencies in basic research methodology and theory. It focuses on research and theory in the behavioral sciences, advanced statistics, correlation and measurement techniques, and research design. In addition students will be expected to acquire some facility in computer utilization. They may also develop advanced skills in more applied research areas of curricular analysis or systems analysis. Students should have a substantial foundation in theoretical content which has developed in disciplines such as psychology, sociology, and linguistics. In most cases they will have a minor in one of these areas, or in other appropriate areas. These, together with courses available in the student's curriculum emphasis area, are expected to prepare the graduate for the task of making theoretical and research contributions to education, particularly those aspects of education that are related to instructional systems technology.

Professional careers with heavy emphasis on instructional systems technology research are most likely to be found in large universities having doctoral programs in the IST field, government-supported research and development programs, industry, the military services, and schools of various kinds. In such positions, professionals would be responsible for designing and conducting either basic or applied research, contributing knowledge to the field through scholarly writing, and consulting and advising others regarding methodology and theory.

Additional Areas for Developing Competencies

One or more courses in IST, as well as additional courses in other schools and departments of the University, may be used to plan a limited program of courses in several competency areas as follows:

1. Computer Technology (Bern)

The computer is already so demonstrably pertinent to the IST field that doctoral and specialist candidates would be well advised to take one or more courses in computer technology. Prognoses for the future attest to the centrality of the computer for the following aspects of the IST field: research, administration, information storage and retrieval, simulation, and instruction. The computer may become the most versatile and indispensable "medium" yet devised by modern technology. Computer technology will be of potential use to all IST specialists and a very important area of specialization for some.

2. Educational Media in Areas of Rapid Change (Stevens, Pett)

Work leading toward competency in this area considers instructional problems in the light of social systems structure, function, maintenance, and renewal. The processes of enculturation, acculturation, continuity, and change are studied to undergird the development of skills required for the design of instructional programs for areas of rapid economic, social, and political change in the United States and abroad.

3. Programed Instruction (Hughes, Brown)

Programed instruction integrates instructional method, SR learning theory, and special materials and devices in a way that has demonstrated success in education, industry, and government. Importantly, it has focused the attention of educators on the value of specifying objectives in behavioral terms, on the merit of testing students to ascertain what objectives have been achieved, and on the desirability of modifying instruction so that more students meet the criterion objectives.

4. Writing for Educational Media (Carter, Fleming, Niekamp)

The design, production and evaluation of educational materials usually require word skills. Such skills are developed by applying writing and communications principles in situations that exploit the unique characteristics of chosen media. Message objectives and media potentialities suggest writing styles. Although most of the experiences offered involve design of film productions, the skills acquired are transferable to other media, as well as to general academic performance.

Course Descriptions

R423 Utilization of Instructional Materials (3 cr.)

For preservice teachers. Laboratory experiences in the selection, preparation, utilization and evaluation of instructional materials culminate in a simulated classroom presentation by each student.

R505 Workshop in Instructional Systems Technology (cr. arr.)

Demonstrations, lectures, and group discussions concerning utilization, preparation, and administration of audio-visual materials. Guest lecturers and consultants. One credit hour for each week of full-time work.

R523 Utilization of Audio-Visual Materials (3 cr.)

Deals with the planning and use of resources for developing instruction in the classroom or other locations where learning takes place. Designed to provide the student with experiences which will enable him to select, arrange, and utilize a variety of resources in a systematic approach to instruction.

R533 Organization and Curricular Integration of Audio-Visual Media (3 cr.)

P: R523. Organizing, facilitating, and integrating of audio-visual materials in school curricula and educational programs, defining of purposes of instruction, planning of instructional units and selecting and evaluating of materials.

R535 Programed Instruction (3 cr.)

Students develop original programed materials as they learn about the process of instructional programing. Their work is in the five stages: task analysis, design, editing, developmental testing, and validation testing. Although the relevance of principles of learning is considered, the major emphasis is on the mastery of the skills and techniques involved in writing programed material.

R537 Writing for Educational Media (3 cr.)

Principles of script writing for visual and verbal continuity and sequencing of ideas. Considers also audience involvement factors and organizational patterns as they affect script writing.

R543 Preparation of Inexpensive Instructional Materials (3 cr.)

Laboratory practice in creating visual instructional media, applying lettering, coloring, and mounting techniques. End products include pictures, maps, charts, and graphs for projected and nonprojected use. Includes application of a basic model of graphic communication.

R544 Production Techniques (3 cr.)

Basic principles, skills, and techniques of photography and their application to problems of communication and instructional development.

R546 Survey of Audio-Visual Communications (Theory) (3 cr.)

Considers concepts, principles, and theoretical orientations drawn from the fields of psychology, social psychology, anthropology, communications and general systems. On completing the course, students should be able to identify the authors of, describe, compare, and

place in historical perspective contributions made by the above fields as they relate to the roles of various media of communication and technologies in the processes of learning and culture transmission.

R550 Introduction to Diffusion and Adoption of Educational Innovation (3 cr.)

P. Graduate standing. Discusses the contemporary context of diffusion and adoption of innovation in education. Presents an overview of education's experience with diffusion and adoption introducing briefly the technological, sociological, psychological and political aspects of the process of diffusion and adoption of education and innovation.

R555 Radio and Television in Education (3 cr.)

Communication in the learning process, radio and television transmission; planning, scheduling, classroom utilization, and evaluation of educational programs; case studies and research findings. Not open to those who have taken Education R453.

R558 Utilization of Instructional Television (3 cr.)

The contributions of instructional television and its integration into formal and informal learning situations; characteristics of telecasts, including those intended for supplementation or enrichment, major, resource, and direct teaching; and observation, utilization, and evaluation of instructional telecasts.

R566 Audio-Visual Communications in Formal Education (3 cr.)

P: R523. Applies basic concepts of communication to problems in teaching and learning with school and adult audiences. Discusses the role and contribution of instructional technology in problem solving, attitude formation, and motor learning. Considers various systems approach models to instructional development and offers students a simulation exercise in applying a systems model in planning, producing, and testing a unit of instruction. Each student develops an 8-10 lesson unit utilizing a model of his choice.

R572 Principles of Photographic Production (3 cr.)

P: R543 and R544. Principles of black and white and color photography as applied to the design and development of instructional materials. Laboratory experience includes work with display photographs, slide sets, filmstrips, and transparencies.

R573 Principles of Graphic Communications (3 cr.)

P: R543 and R544. Language and design of graphic communication; principles from psychology and the visual arts; basic design principles, exploration through laboratory exercises in the creative development of opaque and transparent visual imagery.

R574 Educational Motion Picture Production (3 cr.)

P: R544 or equivalent. An introductory laboratory-type course designed to develop individual skills in communicating with moving images. Practical application of motion picture technology in the production of systematically designed messages. Each student produces a short film, considers appropriate research findings, identifies relevant evaluative criteria, and formulates proposals for revision.

R590 Research in Instructional Systems Technology (cr. arr.)

P: Consent of instructor.
Individual research

R595 The Learner, Media and Research (3 cr.)

Studies the research history of instructional systems technology. Introduces the language and approach of science and applies this understanding to the analysis of problems in instructional systems technology. Introduces current relevant research in the disciplines foundational to instructional systems technology. This course has a laboratory component.

R597 Practicum in Medical Technology Teaching Skills (1-4 cr.)

R599 Master's Thesis in Instructional Systems Technology (3 cr.)

Individual study of a specific problem. May be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

R610 Learning Environments Design (3 cr.)

P: Approved graduate courses in each of the following — media production and utilization, educational psychology, educational measurement, statistics, plus consent of instructor. Principles and practice of environmental design. Study of interrelationships among environmental variables. Use of decision models in the design process. Design, construction, and testing of learning environments representing alternative profiles of variables.

R620 Instructional Task Analysis (3 cr.)

P: R610. Principles and practice of analysis of instructional tasks. Study of task configurations, taxonomies for task classification, and task sequencing. Extensive analysis of actual instructional behaviors.

R630 Learner Analysis in the Instructional Technology Process (3 cr.)

P: R610. Methods for utilizing aptitude data in the instructional technology process. Use of criterion-referenced instruments to diagnose entry behavior and place students in the instructional environment. Use of task and aptitude information to create instructional strategies differentially effective for a wide range of students.

R634 Theory and Principles of Message Design (3 cr.)

P: A behavioral science course and a production course. Relates selected research-based principles from behavioral science to the problems and processes of designing instructional messages. Units in perception, learning, persuasion, and structure of knowledge; laboratory projects in designing messages in student's subject area.

R636 Technology of Education (3 cr.)

P: Three IST courses. The course explores applications of principles of technology to education and examines changes likely to occur in education as an emerging technological society. The relationship between science and technology with specific reference to education and the technological origins of "systems" approaches are examined.

R640 Educational Media in Areas of Rapid Change (3 cr.)

P: R546. Considers factors of relevance to the uses of media and to the design of instructional mediation systems in changing societies.

R646 Research in Verbal and Visual-Iconic Signs in Instructional Message Design (3 cr.)

P: A general, introductory psychology course, or one of R535, R546, R595, R634. Examines the relative strengths and weaknesses of visual-iconic (e.g., pictorial) and digital (primarily verbal) signs, for varying teaching-learning purposes, especially as these are contingent on the learner's developmental level. The course is designed with both the instructional message designer and the Mass Communications major in mind. Introduces certain methods relevant for research in nonverbal Communications.

R650 Diffusion and Adoption of Educational Innovations — Models, Techniques and Applications (3 cr.)

P: R550. Discusses some important change models for understanding and planning diffusion and adoption of educational innovation. Uses of these models and various diffusion and adoption techniques in specific educational situations are demonstrated.

R655 Educational Writing for Radio and Television (3 cr.)

Planning and writing the lecture-demonstration, the semi-scripted program, and the fully-scripted documentary program; styles of writing as related to educational objectives; program design in relation to production procedures.

R660 The Individual, the Group and Planned Change: Social-Psychological Determinants (3 cr.)

P: R550. Considers psychological principles (perception, motivation, learning) and social-psychological forces (interpersonal and small group dynamics), relevant to understanding resistance to change. Integrates these principles in ways to facilitate an understanding of innovation diffusion. Points up educationally important questions in the diffusion/adoption area that need researching.

R665 Administration of Audio-Visual Communications Programs (3 cr.)

P: Basic courses in instructional systems technology. Applies basic principles of management in the design and operation of varying types of media programs in various institutional settings. Identifies primary functions performed by instructional media personnel and considers various organizational patterns, administrative strategies, and alternative structures for achieving and evaluating each function. Each student develops a detailed 3-5 year proposal for a learning resource program.

R670 Sociological Aspects of Innovation Diffusion in Education (3 cr.)

P: R550 Sociological characteristics of school systems which are relevant to educational innovation, including new technology. Educational institutions as social systems (inter-role relationships, communications networks, opinion leadership, social controls). Institutional barriers to change, including political and economic factors. Role of foundations, accreditation agencies, professional organizations, governmental agencies, etc. Applications from organizational behavior.

R671 Advanced Production I — Motion Picture Emphasis (3-5 cr.)

P: R574 and/or consent of instructor. Message design and development principles applied to the creation of instructional films. Students work in teams on the production of professional quality sound motion pictures.

R671 Advanced Production I — General Instructional Materials Emphasis (3 cr.)

P: R572, R573 or R574 and/or consent of instructor. Message design, audio, graphic, photographic, and motion picture principles and techniques applied to

the design and development of instructional materials to meet specific objectives.

R672 Advanced Production II — Motion Picture Emphasis (3-5 cr.)

P: R671. Message design and development principles applied to the creation of instructional films. Students work in teams on the production of professional quality sound motion pictures.

R672 Advanced Production II — General Instructional Materials Emphasis (3 cr.)

P: R671. A practicum course in which students work with teacher or other clients to produce instructional materials to meet specific objectives. Seminar sessions focus on theoretical and applied aspects of production.

R674 Research Methods in Instructional Systems Technology (3 cr.)

P: P501. Initially, the nature of science is examined as well as the significance of science for education. Then, topics of research design are taken up, with special emphasis on experimentation. Finally students participate in the various aspects of a research project, including the writing of a report on the research done.

R773 Seminar in Instructional Systems Technology I (2 cr.)

A research seminar required of all doctoral candidates designed to develop the ability to examine critically student and faculty research in instructional systems technology in progress.

R774 Seminar in Instructional Systems Technology II (2 cr.)

P: Major portion of doctoral major and minor courses completed and consent of chairman of doctoral committee. Deals with researchable topics in instructional systems technology. Designed to help doctoral students identify researchable topics, develop research designs, and prepare research proposals.

R799 Doctor's Thesis in Instructional Systems Technology (cr. arr.)

Credit may be earned over a period of several semesters. The thesis may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

Academic Counselors

Offices of most of these academic counselors are in the Student Services Building located at Kirkwood and Indiana Avenues and are most easily located by entering the Indiana Avenue entrance. Their telephone numbers can be found in the Indiana University Telephone Directory or by calling the University operator. It is requested that students wishing conferences with academic counselors make appointments by telephone.

Bachelor's Degree Options	Counselors
IST Minor	Heinich
	Molenda
	Pett
	Sherman
IST/Radio and Television	Sherman
	Johnson, George
IST/School Library Services	Sherman
	Guss

Master's Degree Options	Counselors
Teaching Area/IST Combinations	Guss
	Flaten (Botany, Zool.)
	Vuke (Bio. Sci.)
Coordinator of Audio-Visual Materials	Guss
	Moldstad
Instructional Materials Center Coordinator	Guss
	Moldstad
Production of Instructional Materials	Carter (Mot. Pic.)
	Flaten (Still Photo)
	Frye (Graphics)
	Levie (Mot. Pic.)
	Pett (General Prod.)
	Stevens (Still Photo)
	Vuke (Mot. Pic.)
Instructional Television Specialist	Johnson, George
Master's International Students	Pett, Stevens

Ed.S., Ed.D., Ph.D. Degree Emphasis Areas	Counselors
Instructional Television	Johnson, George
Instructional Design and Development	Davies
	Schwen
Product Evaluation and Curricular Integration	Guss
	Heinich
Systems Design and Management of Learning Resources Programs	Heinich
	Moldstad
	Richardson
Message Design and Production	Carter (Mot. Pic.)
	Flaten (Photo)
	Fleming (Mes. Des.)
	Frye (Graphics)
	Levie (Mot. Pic.)
	Pett (Mes. Des.)
	Stevens (Mes. Des.)
	Vuke (Mot. Pic.)
Diffusion and Adoption of Innovations in Instructional Systems Technology	Bhola
	Jwaideh
	Knowlton
IST in Developing Countries	Pett
	Stevens

Faculty

Bern, Henry A., *Ph.D., Professor of Education*
Bhola, Harbans S., *Ph.D., Associate Professor of Education*
Brown, Jerry, *Ph.D., Assistant Professor of Education*
Carter, Ledford C., *M.S. in Ed., Assistant Professor of Education*
Cuttill, William J., *M.S. in Ed., Lecturer in Education*
Davies, Ivor K., *Ph.D., Professor of Education*
Faris, Kenneth G., *Ed.D., Dean for Learning Resources, Office of the Vice-President and Dean for Academic Affairs; and Professor of Education*
Flaten, Clarence M., *Ph.D., Professor of Education*
Fleming, Malcolm L., *Ed.D., Professor of Education*
Frye, Harvey R., *M.S. in Ed., Associate Professor of Education*
Guss, Carolyn, *Ed.D., Professor of Education*
Heinich, Robert, *Ph.D., Professor of Education*
Hughes, Lawson H., *Ph.D., Associate Professor of Education*
Johnson, George C., *A.M., Professor of Education*
Johnson, Stephen C., *Ed.D., Assistant Professor of Education*
Jwaideh, Alice R., *Ph.D., Associate Professor of Education*
Knowlton, James Q., *Ph.D., Professor of Education*
Larson, Lawrence C., *A.M., Professor Emeritus of Education*
Levie, W. Howard, *Ph.D., Assistant Professor of Education*
Moldstad, John A., *Ed.D., Professor of Education*
Molenda, Michael, *Ph.D., Assistant Professor of Education*
Niekamp, Walter E., *Ed.D., Lecturer in Education*
Pett, Dennis W., Ed.D., *Associate Professor of Education*
Richardson, Edgar L., *Ed.D., Associate Professor of Education*
Schwen, Thomas M., *Ed.D., Assistant Professor of Education*
Sherman, Mendel, *Ed.D., Director Division of Instructional Systems Technology, and Professor of Education*
Stevens, Warren D., *Ed.D., Professor of Education*
Stockton, Philip W., *A.M., Lecturer in Education*
Thiagarajan, Sivasailam, *Ph.D., Assistant Professor of Education*
Vuke, George J., *Ed.D., Associate Professor of Education*
Wagner, Chris M., *A.M., Lecturer in Education*
Wetmore, Patricia C., *Ed.D., Assistant Professor of Education*

General Requirements and Information

Requirements for advanced graduate degrees with a major in Instructional Systems Technology, descriptions of all courses in education, and other information concerning enrollment in the Graduate Division of the School of Education or in the Graduate School are given in the Graduate Division Bulletin of the School of Education, which can be obtained by writing directly to the School of Education.

Although the Aptitude Test of the Graduate Record Examination is not required for admission to the Master of Science in Education degree program, a student's chances of obtaining favorable consideration for a graduate appointment at this level are greatly enhanced if his test scores accompany his application. The GRE Aptitude Test is required for admission to the specialist and doctoral programs. Normally a minimum total standard score of 1,000 on the Verbal-Quantitative Aptitude Test of the GRE is required for admission to a doctoral program. For application forms and information about the test and the dates it will be administered, please write to the Educational Testing Service, Box 955, Princeton, New Jersey 08540, or 1947 Center Street, Berkeley, California 94704.

Individuals interested in further specific information concerning the undergraduate and graduate programs in IST at Indiana University should include in their inquiries information concerning previous training and experience.

Requests for application blanks and further information concerning graduate assistantships, fellowships, and part-time positions should be sent to:

Dr. Mendel Sherman, Director
Division of Instructional
Systems Technology
School of Education
Indiana University
Bloomington, Indiana 47401